



JPRS Report

Proliferation Issues

PROLIFERATION ISSUES

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[This report contains foreign media information on issues related to worldwide proliferation and transfer activities in nuclear, chemical, and biological weapons, including delivery systems and the transfer of weapons-relevant technologies.]

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SOUTH AFRICA

U.S. Armscor Embargo 'No Big Deal'

Defense Spokesman Comments

MB1410100891 Johannesburg BUSINESS DAY in English 14 Oct 91 p 2

[By Linden Birns]

[Text] The trade embargo prohibiting U.S. companies from trading with SA's [South African] armaments manufacturers and procurement corporation Armscor [Armaments Corporation of South Africa], or any of its subsidiaries, was "no big deal", Defense Ministry spokesman Chris van der Westhuizen said yesterday.

On Friday [11 October] the U.S. announced it was banning trade between U.S. businesses and the Armscor group after discovering that Armscor had been developing medium-range ballistic missile technology.

Although the Defense Ministry had not yet seen the documents outlining the sanctions, the embargo did not seem terribly serious, van der Westhuizen said.

According to JANE'S DEFENSE WEEKLY'S SA correspondent Helmoed-Romer Heitman, the new embargo will not have any meaningful effect on Armscor.

He said the U.S. announcement was routine, and it appeared as if SA was merely being added to the U.S.'s list of countries with medium and long-range ballistic missile capabilities.

"There does not seem to be anything new that is not covered by the two standing UN arms embargos against SA."

It was unlikely that the embargo's objective was to punish SA for dealing with countries which the U.S. did not like, he said.

Weekend reports suggested that the embargo might be a punishment for Armscor's sale of G-5 cannons to Iraq before the outbreak of the Gulf war.

Armscor Spokesman Comments

MB1210121291 Johannesburg South African Broadcasting Corporation Network in English 1100 GMT 12 Oct 91

[Excerpts] Foreign Affairs Minister Pik Botha says American legislation against the proliferation of missile technology by Armscor [Armaments Corporation of South Africa] is not aimed at South Africa. He said it had nothing to do with Armscor's trade with Iraq before the Gulf War. [passage omitted]

The vice-president of the independent American company Armscor America, Mr. Jim Murray, told our Johannesburg newsdesk that he personally regarded the sanctions as ill-advised and unfair. Mr. Murray is in

South Africa to negotiate the purchase of commercial products with Armscor. Mr. Murray said South African products imported by his company in the past four years were very popular in the United States and that the company would probably be put out of business if the legislation came into effect.

An Armscor spokesman said in reaction that, due to the arms embargo, South Africa had established the capability to develop and manufacture a wide range of missiles for its own military use. He told our military correspondent that, as a result of defense cuts, these programs had been curtailed to a large extent and that further development would be directed towards commercial applications.

Pik Botha Denies Nuclear Cooperation With Iraq

MB0301634 Johannesburg South African Broadcasting Corporation Network in English 1600 GMT 3 Oct 91

[Text] South Africa has never cooperated with Iraq in acquiring nuclear technology. This denial was made this afternoon by the minister of foreign affairs, Mr. Pik Botha, shortly before he departed on an overseas visit.

Mr. Botha was reacting to reports which quoted a South African Embassy spokesman in Washington as saying that South Africa may have supplied technology to Iraq to develop nuclear weapons. Mr. Botha denied that any such statements have been made.

He reaffirmed that South Africa had adhered to the United Nations embargoes on military cooperation with Iraq.

U.S. Missile Proliferation Sanctions

Botha Says Unfair

MB12008304 Johannesburg SAPA in English 0726 GMT 12 Oct 91

[Text] Johannesburg Oct 12 SAPA—Foreign Affairs Minister Mr. Pik Botha on Saturday [12 October] described new sanctions imposed by the United States against South Africa as "a bit unfair". He was speaking at a press conference at Jan Smuts Airport in Johannesburg on his return from a eight day visit to Australia and New Zealand. Mr. Botha was reacting to the United States' announcement on Friday night that it would impose new sanctions on South Africa in protest against the proliferation of missiles and missile technology by Armscor [Armaments Corporation of South Africa].

The United States on Friday night Mr. Botha hastened to add sanctions should not be perceived as being political in nature. [Sentence as received] "They must not be perceived as sanctions against the South African government for having done anything of a political nature with which the United States does not agree. It is directed world-wide against the proliferation missile technology".

Mr. Botha said the new sanctions were a result of the formation of the Missile Technology Control Regime (MTCR), to which the G7 [Group of Seven] countries and Australia belonged. The purpose of the organisation was similar to the Non-Proliferation Treaty which was to control the proliferation of missiles and missile technology.

He said the new sanctions had come at an inopportune time. He had spoken telephonically from Australia to a senior United States official about the matter and further consultation between the two governments was envisaged.

The sanctions, which come into immediate effect and which will last two years, prohibit:

- The export to Armscor or its subsidiaries or affiliates of a wide range of goods produced in the United States.
- All U.S. contracts with Armscor or its subsidiaries or affiliates.
- The importation of any product produced by Armscor or its subsidiaries or affiliates.

Further on Botha's Remarks

*MB1210091291 Johannesburg SAPA in English
0819 GMT 12 Oct 91*

[By Adrienne Carlisle]

[Excerpts] Johannesburg Oct 12 SAPA—Foreign Affairs Minister Mr. Pik Botha on Saturday [12 October] denied new arms sanctions applied by the United States Government against South Africa had anything to do with Armscor [Armaments Corporation of South Africa] sales and said the move should not be perceived as being political in nature. Speaking at a press conference at Jan Smuts Airport in Johannesburg on his return from an eight day visit to Australia, New Zealand and the Republic of China, Mr. Botha described the sanctions as

"a bit unfair" and said they had come at an "inopportune time". [passage omitted]

Press reports speculated on Saturday that the sale of missiles to Iraq, among other countries, was behind the U.S. decision. Mr. Botha said questions regarding sales of arms to Iraq and other countries should be put to authorities dealing with arms supply as he was "not in that business".

"The sanctions must not be perceived as sanctions against the South African Government for having done anything of a political nature with which the United States does not agree. It is directed world-wide against the proliferation of missile technology." [passage omitted]

Mr. Botha had spoken telephonically from Canberra, Australia, to U.S. Assistant Secretary of State for African affairs Mr. Herman Cohen about the matter and further consultation between the two governments was envisaged. [passage omitted]

Mr. Botha said he had told Mr. Cohen that following the signing by South Africa of the Non-Proliferation Treaty earlier this year the U.S. should have taken cognizance of the sincerity and good intentions of the South African Government. "I would have hoped that cognizance would have been take of the fact that we are cutting back on defence expenditure."

While he was unable to explain the reluctance to accept South Africa as a member of the MTCR [Missile Technology Control Regime], he did not rule out the possibility of future membership. "If we cannot be full members surely they can create another form of membership."

"We want to belong to the club and be part of an organisation which can together control and perhaps exchange technology and knowledge with one another."

Mr. Botha emphasised the sanctions had no practical effect on Armscor as the existing arms embargo was more extensive than the new measures. "It has no new consequences or implications for Armscor whatsoever."

DPRK Will Arm With Nuclear Weapons

Seoul Newspaper Reports

HK2509104691 Hong Kong AFP in English 0956 GMT
25 Sep 91

[Text] Seoul, Sept 25 (AFP)—North Korea has informed China that it will arm itself with nuclear weapons to defend itself from attempts by Western countries to undermine its socialist system, a Seoul newspaper said Wednesday [25 September]. The CHUNGANG ILBO quoted a high-ranking source in Beijing as saying that Pyongyang notified Beijing of its decision to obtain nuclear weapons after a coup attempt by Soviet hard-liners backfired last month.

The notification was made when Kim Yong-Sun, a secretary in charge of international affairs for North Korea's ruling Workers Party, met with Zhu Liang, director for foreign affairs of the Chinese Communist Party. Kim called for Beijing's consent to the decision, but Beijing has not made any response, CHUNGANG ILBO said.

The report came after North Korea's First Vice Foreign Minister Kang Sok-chu said last week that Pyongyang would never allow inspection of its nuclear facilities until U.S. nuclear weapons are removed from South Korea. Kang told Seoul's national news agency YONHAP that Pyongyang's signing of an international nuclear safeguard accord would depend on whether the United States could guarantee that it did not pose a nuclear threat to the North.

North Korea signed the Nuclear Non-Proliferation Treaty in 1985. But it has delayed signing a safeguards accord with the International Atomic Energy Agency, raising suspicions in the South and the West that it is seeking to buy time to produce nuclear weapons.

U.S. intelligence officials have reportedly told Japanese officials that North Korea was already capable of producing nuclear weapons.

Report Denied

HK2609110191 Hong Kong AFP in English 1023 GMT
26 Sep 91

[Excerpt] Beijing, Sept 26 (AFP)—China denied Tuesday [as received] press reports that North Korea had informed Beijing it intended to acquire nuclear weapons as protection against Western attempts to destabilise its communist regime.

Wu Jianmin, a spokesman for the Ministry of Foreign Affairs, described the report, published Wednesday [25 September] in South Korea by the CHUNGANG ILBO, as "sheer fabrication."

The newspaper, quoting a "high-placed" source in Beijing, said that after the failure of the coup by Soviet hardliners in August, Pyongyang had demanded China's

consent for its acquisition of a nuclear arsenal. China had not made any response, according to the newspaper.

North Korea signed the Nuclear Non-Proliferation Treaty in 1985, but has always refused to allow inspection of its nuclear installations. Pyongyang is suspected, particularly by the United States, of already being capable of producing nuclear weapons. [passage omitted]

Country Affirms Korean Nuclear-Free Zone Support

OW1710091591 Beijing XINHUA in English
0852 GMT 17 Oct 91

[Text] Beijing, October 17 (XINHUA)—A Chinese Foreign Ministry spokesman today said that China supports turning the Korean peninsula into a nuclear-free zone and the feasible steps to realize this goal.

At a weekly press conference here this afternoon, spokesman Wu Jianmin was asked whether "North Korea's accepting international supervision on its nuclear installations" was discussed during the recent China visit by President Kim Il-song of Democratic People's Republic of Korea (DPRK). "During President Kim Il-song's visit, the two sides touched upon the question and the DPRK side reiterated its position on this issue, hoping that the United States will withdraw its nuclear weapons from South Korea," he said.

The Chinese side expressed the hope that the parties concerned will solve this problem through consultations, he said.

"China supports the stand for turning the Korean peninsula into a nuclear-free zone and all the feasible steps taken to realize this above-mentioned goal," Wu said.

Iranian Nuclear Collaboration Denied

MFA Spokesman Comments

CM2110162391 Beijing RENMIN RIBAO OVERSEAS EDITION in Chinese 21 Oct 91 p 1

[Text] Foreign Ministry Spokesman Describes WASHINGTON TIMES Report as "Groundless"

[Text] The Chinese Foreign Ministry spokesman today described a report that China is helping Iran build a nuclear reactor and Iran is seeking to purchase Chinese ballistic missiles, carried by THE WASHINGTON TIMES on 16 October, as "groundless."

The report cited a U.S. Government official as saying that China was building a nuclear research reactor in Iran that was part of an Iranian secret weapons program and almost certainly would be used to build nuclear weapons.

The report also said that Iran had sought to purchase Chinese M-11 ballistic missiles.

In response to the question from correspondents, the spokesman said that "all these remarks are groundless."

Iranians Deny Allegations

OW2010015591 Beijing XINHUA in English
0131 GMT 20 Oct 91

[Text] New Delhi, October 19 (XINHUA)—Iran described here today as "baseless" press reports regarding the alleged nuclear collaboration between it and China.

In a statement, the Iranian Embassy here said "Iran like India is in favor of nuclear disarmament in the world."

It also said "Iran calls for nuclear disarmament in the world and believes that the atomic disarmament of the South-West Asia is being stressed with a view to securing the American interests in the region."

Spokesman Denies Missile Deal With Iran, Syria

HK1510105291 Hong Kong AFP in English 1002 GMT
15 Oct 91

[Text] Beijing, Oct 15 (AFP)—China denied Tuesday a report that it was negotiating to supply Iran and Syria with factories able to produce a new kind of ballistic missile.

A Foreign Ministry spokesman labeled as "nonsense" a report by THE SUNDAY TIMES newspaper in London which said that separate negotiations currently were under way between Beijing and the governments in Damascus and Tehran.

The paper quoted a Pentagon source as saying that if the deal for the factories went through both Syria and Iran would be able to manufacture and sell the new-generation missiles without outside control.

Syria has asked China to develop an M-9 ballistic missile for it, defense sources say, adding that Beijing was also a major arms supplier to Iran during its eight-year war with Iraq and continued to sell weapons.

The denial came a day after Chinese Vice Foreign Minister Liu Huaqiu left here for London for talks with the four other permanent members of the UN Security Council on reducing arms proliferation in the Middle East.

The first round of talks was held in Paris earlier in the year and China pledged to take a responsible attitude on arms sales. The permanent members are Britain, China, France, the Soviet Union and the United States.

Pugwash Conference Views Disarmament

Weapons Not Yet Eliminated

OW1909175491 Beijing XINHUA in English
1536 GMT 19 Sep 91

[Text] Beijing, September 19 (XINHUA)—Scientists from both the East and the West today warned of the danger of nuclear war, and called for worldwide nuclear disarmament and further efforts to prevent nuclear war.

Joseph Rotblat, president of the Pugwash Conference on Science and World Affairs, which is being held here, said, "nuclear weapons are still there and no single nuclear warhead has yet been eliminated as a result of an international agreement."

"The danger of nuclear war is going down, but nuclear weapons and nuclear arsenals are increasing," he added.

Mr. Rotblat, aged 83, started work on the atom bomb in the first and second world wars and was a signatory of the Russell-Einstein Manifesto in 1955.

Ironically, he suggests he was perhaps the first person to help develop the concept of nuclear deterrence.

He said there are 50,000 nuclear warheads throughout the world, but "the main dangers come not from China but from the United States and the Soviet Union, because they have the largest nuclear arsenals."

He said he was happy about China's decision to sign the Nuclear Non-Proliferation Treaty since many people had worried China might intend to support nuclear proliferation in other countries.

Chinese physicist Chen Xueying noted that although the United States and the Soviet Union have originated the START treaty, the original goal of eliminating the first-strike capacity of the two sides has not yet been realized.

To promote nuclear disarmament scientists from the East and the West call on more people to discuss both the threat nuclear weapons pose to the world and possible means of preventing nuclear war.

Mikhail Milstein from the Soviet Union urged further efforts towards a comprehensive nuclear weapons test ban, noting that such tests damage the environment and do not contribute to nations' security.

Mr. Rotblat said that the efforts made by the Pugwash Conferences on Science and World Affairs in the past 30 years and more have helped prevent nuclear war by using scientific data to inform world leaders of the huge human and environmental costs of nuclear war.

'Concrete' Efforts Made

OW2209175891 Beijing XINHUA in English
1508 GMT 22 Sep 91

[Excerpt] Beijing, September 22 (XINHUA)—China cut one million military forces several years ago and now

runs a quite low military expenditure, only five U.S. dollars per capita, far lower than that of Western developed countries, a Chinese official said here today.

Zhu Shanqing, vice-president of the Chinese People's Association for Peace and Disarmament, said at the 41st Pugwash Conference on Science and World Affairs that China has made concrete action in preserving world peace and disarmament.

Addressing more than 200 scientists from 20 countries and international organizations, he said, China's military expenditure is the lowest compared with that of big countries in the world. Not long ago, China announced that it decided in principle to join the Nuclear Non-Proliferation Treaty. [passage omitted]

Conference Supports Nuclear Nonproliferation

HK0110135291 Beijing RENMIN RIBAO in Chinese
25 Sep 91 p 7

[Article by staff reporters He Chongyuan (0149 1504 0337) and Liu Yun (0491 9462): "Enhance Friendship, Maintain Peace, Promote Development: Roundup of Beijing Annual Meeting of Pugwash Conference for Science and World Affairs"]

[Excerpt] Promoting the progress of arms control, reducing nuclear weapons, and preventing nuclear war have always been the focus of the Pugwash Conference, as well as an important prerequisite for ensuring world peace. Over the past 30 years, a participant attending the meeting said, the United States and the Soviet Union have rivaled for nuclear superiority. The strategic nuclear arsenals of the two sides have reached a "terrifying balance." Although the United States and the Soviet Union have signed a treaty on reducing offensive strategic weapons this July and even when the treaty is fully put into implementation, the strategic nuclear warheads possessed by each side exceed 6,000, capable of destroying the other side repeatedly. The Pugwash Conference pointed out in its "world peace" report that "the two countries that have the largest nuclear arsenals shoulder special responsibility" for the threat facing the world. The Pugwash Conference proposed eliminating all tactical nuclear weapons which include cruise missiles; reducing nuclear weapons by a wide margin; accepting the treaty on completely banning nuclear experiments; and vigorously supporting the international nuclear nonproliferation program and establishment of a nuclear-free zone. Calogero, secretary general of the Pugwash Association, said that "China and France announced that they would sign the Nuclear Nonproliferation Treaty. This is the latest achievement attained by the nuclear nonproliferation program." China has taken practical action to make its due contribution to safeguarding world peace and disarmament, particularly to promoting security and development in the Asia-Pacific region. [passage omitted]

Soviet Central Control Over Nuclear Weapons Approved

OW1209010691 Beijing XINHUA in English
0056 GMT 12 Sep 91

[Text] Moscow, September 11 (XINHUA)—Soviet Defence Minister Yevgeniy Shaposhnikov said today that representatives from Soviet sovereign republics have agreed "the Armed Forces should be unified," and "nuclear weapons should be under centralized control."

In a consultative meeting between Soviet Defence Ministry officers and various republics held on Tuesday and Wednesday, agreements of understanding were reached on reforms in the military and security guarantees for republics that have declared independence, TASS news agency quoted Shaposhnikov as saying.

He said the sovereign republics have "approved in principle" the concept on military build-ups proposed by the Soviet Defence Ministry.

Representatives from newly-independent republics of Lithuania, Estonia and Latvia also participated in the consultations.

Diplomat Views Biological Weapons, Technology

OW1309093691 Beijing XINHUA in English
1354 GMT 12 Sep 91

[Text] Geneva, September 12 (XINHUA)—A Chinese diplomat said here Thursday that China strongly supported the ban on biological weapons and opposed their proliferation.

Hou Zhitong, China's ambassador for disarmament affairs, declared that China would stick to the policy of no development, no production and no stockpiling of biological weapons.

Hou was speaking at an international conference called to review the implementation of the 1972 Biological Weapons Convention.

Under the convention, signatories undertook to destroy existing stocks of biological weapons but there was no verification mechanism, leaving it open to violation.

China had seriously and comprehensively fulfilled its obligations to the convention, submitting annual reports to the United Nations containing information and materials related to the convention, he said.

Hou stressed that biotechnology had its positive uses which should be encouraged.

"It is China's consistent position to oppose the proliferation of biological weapons, but at the same time, we do not agree to any action aimed at restricting or hindering international cooperation and exchange in the peaceful uses of biotechnology," he said.

To this end, he called on developed countries possessing advanced biotechnology to adopt positive measures to promote trade and technological transfer to developing countries.

Hou also proposed measures to further strengthen the authority and effectiveness of the biological weapons convention including a drive to attract more signatories.

Moreover, existing confidence-building measures should be reinforced and in-depth studies should be conducted with a view to gradually resolving the issue of verification, he said.

Efforts to establish a verification mechanism should be guided by U.N guidelines on the issue, he added.

Nuclear Industry Shifts to 'Peaceful Purpose'

*HK2609011291 Beijing ZHONGGUO XINWEN SHE
in English 1443 GMT 25 Sep 91*

[“New Pattern of China’s ‘Non-Military Nuclear Industry’”—ZHONGGUO XINWEN SHE headline]

[Text] Beijing, September 25 (CNS)—China’s nuclear industry is now shifting from its original military purpose to one of peaceful purpose mainly serving the national economy and people’s daily living.

This was disclosed by the Vice General Manager of the China National Nuclear Industry Corporation, Mr Li Dingfan. After over 30 years efforts, Mr Li said, nuclear technology in China has been applied to many sectors including industry, agriculture, medicine and scientific research. Such applications have been on a considerably

large scale and have attained a rather high level, forming a new pattern for non-military uses.

To date, China possesses two nuclear power plants, the 300,000 kw Qinshan Nuclear Power Plant due to start operations this year and the Daya Bay Nuclear Power Plant whose generating units each of 900,000 kw will start generating electricity in 1993. China, meanwhile, has successfully developed a nuclear reactor of five megawatts capacity, to provide heat in urban areas.

By applying radioactive and biological technologies, China has cultivated 325 good quality species of agricultural products, accounting for one-third of such cultivation in the world. Medical entities making use of isotopes and radioaction technologies number over 1,000 country-wide with some 10 million patients being treated every year.

Industrial departments in China are equipped with over 70 sets of isotope equipment of various kinds which are mainly used products’ faults, the elimination of static electricity, the analysis of trace elements and the prospecting of energy resources, achieving in all a remarkable success. As for radioactive processing technology, China has set up 150 radiation installation of various size with the biggest having a designed capacity of four million curies. Over ten kinds of radioactive industrial chemicals are produced, providing a series of high-polymer materials.

Despite the above-mentioned achievements, China’s civil sector nuclear industry was, Mr Li said, at an early stage with its board prospects still to be further developed.

JAPAN

Dates Set for Nuclear Power Talks With USSR

OW0310101891 Tokyo KYODO in English 1010 GMT
3 Oct 91

[Text] Tokyo, Oct. 3 KYODO—Japan and the Soviet Union will hold their first meeting on nuclear power in Moscow on October 28-29, six months after a bilateral agreement during Soviet President Mikhail Gorbachev's trip to Tokyo, Japanese Foreign Ministry sources said Thursday.

The agreement calls for Japanese-Soviet cooperation in the field of nuclear power for peaceful purposes to deter a repeat of the 1986 Chernobyl nuclear accident.

The sources said Japan hopes to consult with the Soviet Union about ways to ensure the safety of nuclear power plants and trouble-free storage of nuclear fuel.

Specifically, they said, Japan is considering dispatching experts to the Soviet Union and inviting Soviet nuclear power plant operators to Japan for training.

Japanese delegates to the Moscow meeting also hope to talk with their Soviet counterparts about measures to strengthen the nuclear nonproliferation regime and visit a nuclear power plant just outside the Soviet capital, the sources said.

DPRK Said Developing Improved Scud Missile

OW2009104891 Tokyo KYODO in English 1003 GMT
20 Sep 91

[Text] Tokyo, Sept. 20 (KYODO)—North Korea is developing a new type of surface-to-surface missile which has a range of some 900 kilometers, international military sources here said Friday.

The development of the new missile, code-named "Labor I," will be completed in 1992 at the earliest, the sources said.

When the missile is deployed in North Korea, the Kyoto and Osaka areas in Japan would be within its range.

An experimental missile was launched from a place some 100 kilometers north of Pyongyang in June last year and fell in the Sea of Japan, the sources said.

North Korea began domestic development of missiles in 1979.

The country succeeded in producing the Scud B missile in 1987 with the introduction of technology from Egypt, the sources said. The Scud B has a range of more than 300 kilometers.

Pyongyang finished development of the Scud C missile in 1986-1989. An improved version of the Scud B, the Scud C has a range of some 600 kilometers. The Scud C's range is almost the same as Iraq's al-Husayn missile, but

its precision is greater with the help of integrated circuits smuggled from Japan, the sources said.

North Korea has exported 90 to 100 units of Scud B missiles to Iran. The sources said it has been confirmed that 20 Scud C missiles were delivered to Syria this year from Pyongyang.

Libya and Iran have concluded contracts with North Korea to import Scud C missiles, they said.

IAEA Officials Inspect First Enrichment Plant

OW0310114591 Tokyo KYODO in English 1058 GMT
3 Oct 91

[Text] Aomori, Oct. 3 KYODO—Officials of the International Atomic Energy Agency (IAEA) on Thursday made their first inspection of Japan's first commercial uranium enrichment plant in Aomori Prefecture in northern Honshu.

Japanese officials said the inspection by two IAEA experts in Rokkasho was to ensure the plant's safety control system.

The plant is scheduled to go into operation next January.

Plant officials said the plant will start tests on Friday by using natural uranium hexafluoride, a raw material to enrich uranium.

During the inspection, the IAEA team examined a system to check an exact amount of uranium hexafluoride and nuclear fuel.

The experts also checked each manufacturing process of enriching uranium, including a centrifugal separator.

At present, Japan relies entirely on imported enriched uranium but the enrichment plant is expected to supply 25 percent of the country's enriched uranium needs.

Tests Begin on Rokkasho Nuclear Fuel Plant

OW0410021891 Tokyo KYODO in English 0148 GMT
4 Oct 91

[Text] Aomori, Oct. 4 KYODO—The Japan Nuclear Fuel Industries Corp. began test runs on its nuclear fuel reprocessing plant at Rokkasho in Aomori Prefecture on Friday prior to scheduled full operations in January.

The corporation's plant is the first large-scale commercial uranium enrichment facility to be set up by a country not possessing nuclear weapons, and the first to go into operation of three plants forming part of the Rokkasho nuclear fuel recycling center.

The corporation released into its centrifuges gaseous natural uranium hexafluoride, which serves as fuel.

Employees connected the centrifuge to cylinders containing the substance trucked in on September 27.

Over the next four months, staff will test for any abnormalities in the equipment by releasing the gas through tens of thousands of centrifuges which form the main part of the plant.

The equipment will also be tested for radiation leaks as part of an agreement between the company and Aomori Prefecture and Rokkasho.

The Science and Technology Agency will also run its own tests on the plant.

The International Atomic Energy Agency will conduct spot checks to determine whether the plant is producing highly enriched uranium of the type used in nuclear weapons and to ensure that nuclear material is not being stolen, officials said.

Police arrested two protesters last week during a protest near the Rokkasho complex over the transporting of 15 truckloads, or 120 tons, of uranium hexachloride from Tokyo.

Hiroshi Shikanai, an opponent of the plant, said it is now up to those running the plant to ensure they can gain the trust of residents in Aomori Prefecture by making public as much information as they can about the facility.

Report on World War II Germ Warfare Denied

OW2009081591 Tokyo KYODO in English 0759 GMT
20 Sep 91

[Text] Tokyo, Sept. 20 KYODO-The Foreign Ministry on Friday denied a media report that a secret biological warfare laboratory run by unit 731 of the Japanese Imperial Army was operating in Singapore during World War II.

Spokesman Taizo Watanabe told foreign correspondents that according to documents in the possession of the government, "this particular corps, which is referred to as 731, was not existing in Singapore at that time."

Asked if there was a germ warfare laboratory of any kind in Singapore, Watanabe replied, "we don't have any record."

Singapore [words indistinct] a cabinet minister from 1963-1977, revealed that as a boy he worked for two years as an assistant in what he now believes to have been a germ warfare laboratory.

The newspaper said that the laboratory name, "Oka 9420 Butai", was believed to be a code name for the Singapore branch of unit 731.

Unit 731, whose existence was revealed only in the early 1980s, was headquartered in the Manchurian city of Harbin with branches in the Chinese cities of Guangzhou, Beijing, and Nanjing.

The TIMES said Othman's remarks appeared to be the first concrete evidence connecting Unit 731 with Singapore.

Protesters Oppose Transport of Natural Uranium

OW2709140491 Tokyo KYODO in English 1343 GMT
27 Sep 91

[Text] Rokkasho, Aomori Pref., Sept. 27 KYODO—A group of 300 antinuclear protesters rallied near Japan's first commercial uranium enrichment plant in northeast Japan on Friday, opposing the transport of 15 trailer truckloads, or 120 tons, of natural uranium hexafluoride from Tokyo.

Police arrested two protesters who staged a sit-in protest near the nuclear fuel-cycle complex in Rokkasho, Aomori Prefecture. Groups opposed to the plant have claimed it is a serious oversight that authorities would not announce the exact date of transportation and details of the transport route.

The trucks carrying consignments of the uranium hexafluoride went via a major highway, the Tohoku Expressway, from Tokyo to the plant in northern Honshu Island.

An antinuclear group said the International Atomic Energy Agency warned that in the event of an accident involving a leak from containers storing the uranium hexafluoride, the chemical could react with air moisture to produce deadly hydrogen fluoride gas.

The nuclear fuel-cycle plant, which was constructed by the Japan Nuclear Fuel Industries Corp., is scheduled to start operating early next year.

Test operations will begin in early October, using uranium hexafluoride, a raw material used in enriching uranium, company officials said.

The officials said the 120 tons of uranium hexafluoride owned by Tokyo Electric Co. amounts to 22 tons of enriched uranium, which is capable of operating a 1 million kilowatt-level nuclear power reactor for eight or nine months.

Uranium hexafluoride is a pale yellow crystalline compound used during gaseous diffusion for the separation of uranium 235 from ordinary uranium.

Japan now relies entirely on foreign imports of enriched uranium, but in future the enrichment plant is expected to supply 25 percent of the country's uranium needs.

NORTH KOREA

Minister on Nuclear Inspection Prerequisite

SK1010142891 Beijing Radio Beijing in Korean
1100 GMT 8 Oct 91

[Text] According to NHK [Nippon Hosho Kyokai—Japan Broadcasting Corporation], DPRK Foreign Minister Kim Yong-nam reiterated on 7 October in Tokyo that the DPRK's prerequisite to accepting the International

Atomic Energy Agency's nuclear inspection is the complete withdrawal of U.S. nuclear weapons from South Korea.

In a press conference in Tokyo during a brief stopover before returning home, Foreign Minister Kim Yong-nam, who had participated in the UN General Assembly along with Premier Yon Hyong-muk and leaders of the DPRK Government, reiterated this position.

Kim Yong-nam said that the DPRK welcomes U.S. President Bush's proposal to reduce nuclear weapons. He also said that there are reports that the U.S. forces stationed in South Korea are preparing to dispatch some 200 strategic bombers, stating that this is only part of the withdrawal of the U.S. nuclear weapons in South Korea. He noted that the DPRK is deeply worried about this.

On the same day DPRK Premier Yon Hyong-muk held talks with Japan's Socialist Party Chairman Makoto Tanabe. He said that the issue of nuclear inspection, which is not directly related to negotiations to normalize diplomatic relations between Japan and the DPRK, is not an appropriate subject to raise in the negotiations.

SOUTH KOREA

First Korean-Made Nuclear Reactor Passes Tests

SK3009025991 Seoul YONHAP in English 0214 GMT
30 Sep 91

[Text] Seoul, Sept. 30 (YONHAP)—Tests have been completed on the first nuclear reactor built entirely with South Korean technology and it has been rated 100-percent free of defects, a spokesman for the builders, Korea Heavy Industries and Construction Co. (KHIC), said Monday.

In a water pressure test at Yongkwang nuclear power plant No. 3 in South Cholla Province, the reactor was found to be defect-free, he said, adding his company has become the 10th firm worldwide to achieve 100 percent localization of a nuclear reactor, the core facility for atomic power generation.

Officials from the Korea Electric Co., American Society of Mechanical Engineer and Combustion Engineering Co., a technical cooperation company with KHIC, watched the test.

KHIC has spent 600 million won on research and development and 3.4 billion won on facilities to localize the nuclear reactor since 1988 and finally achieved localization after 25 simulated tests over two years.

As KHIC has succeeded in producing an all-Korean nuclear reactor, Korea can now save 10.6 billion won a reactor through import substitution and win overseas contracts for nuclear power plant construction, he said.

Removal of Tactical Nuclear Weapons Planned

SK2809052591 Seoul YONHAP in English 0514 GMT
28 Sep 91

[Text] Seoul, Sept. 28 (OANA-YONHAP)—Tactical nuclear weapons will be removed from South Korea in the near future, a high ranking Korean official said Saturday.

The United States had decided to scrap all of the tactical nuclear arms it keeps in its overseas bases, including short-range ballistic, Pershing and cruise missiles.

He said that although reductions announced by U.S. President George Bush on Friday are limited to tactical nuclear arms, long-range strategic nuclear weapons would be cut when the strategic arms reduction talks between the United States and the Soviet Union are concluded.

Troop withdrawals from South Korea would be decided in consideration of the regional political situation, he added.

Article Reveals Secret Plan on Capability, Policy

SK0710144291 Seoul WOLGAN CHOSON in Korean
Oct 91 pp 222-237

[Article by Yu Yong-won: "Korea Must Obtain Nuclear Armament Capability"]

[Text] Secret Plans Promoted Since 1983

"Nuclear and atomic power." The former has been recognized as a formidable weapon of destruction leading mankind to its own annihilation. The latter is viewed as an eternally burning lamp capable of replacing fossil fuels. In spite of these differing views, the roots of nuclear and atomic power are the same. Just as the above two can be easily interchanged, both of them can also, without any difficulty, easily be diverted for other purposes.

There is currently serious debate in this country concerning this duplicitous "Janus-faced monster." This debate does not concern North Korea's nuclear development, which has become a subject of international concern. Nor does it surround the issue of removal of the nuclear weapons belonging to the U.S. Forces Korea [USFK]. Instead, secret yet serious consideration is being given to whether or not our country should acquire the so-called nuclear option, which calls for developing our nuclear technology to a level that would allow for the production of nuclear weapons should we later decide we need them for an emergency.

This is not a simple military, economic, or scientific issue: It is an important and sensitive issue of a diplomatic nature directly linked to our nation's international relations and prestige. It will also become an issue for our entire people following unification.

On 18 August 1989, then-minister of national defense Yi Sang-hun had a thick report placed on his desk that had come up from the Joint Chiefs of Staff [JCS]. The report was titled the XXX Plan, and it concerned Korea's nuclear policy. Although the top secret contents cannot be precisely known, it is known that the report pointed out the fact that our country lacks its own nuclear policy, discussing the need for obtaining the potential to arm ourselves with nuclear weapons and what means can be used to achieve this objective.

The roots of the XXX Plan go back to 1983. In September 1983, then-JCS Chairman Yi Ki-paek provided a verbal report to president Chon Tu-hwan on Korea's nuclear policy. It is known to have been a theoretical overview lacking any concrete content.

This course continues today, with the nuclear issue being raised by Defense Minister Yi Chong-ku in a report to President No Tae-u before his visit to the United States (June 1991). At this meeting, Yid raise the question by asking No, "Don't we need our own nuclear policy?" No cut off Yi, saying, "I also have my own feelings concerning that."

The potential to produce nuclear weapons (the nuclear option) is also being discussed in connection with future defense strategy. The MND [Ministry of National Defense] and its subordinate research institutions are currently involved in active research on national defense strategy to cover the unification process and the post-unification era.

This name of this plan, the XX [as published] plan, implies a meaning of two unifying to become one while preparing for the 21st century. Although no definite content has been decided upon, one especially controversial issue is how we, following unification, will adjust our relations with the peripheral superpowers—the United States, Japan, China, and the Soviet Union.

Our relations with these peripheral countries will be adjusted according to myriad variables, such as the possibility of change in the ROK-U.S. security system or the possibility of establishing a Northeast Asia regional security system. No matter what the form, Korea must ensure that it is strong enough so that peripheral countries cannot ignore us, allowing Korea to survive in the midst of these four superpowers. Advocacy of the nuclear option as one form of power by which to accomplish this goal is included in the XX plan.

Such moves are not limited to the policy level. A treatise on Korea's nuclear policy is currently receiving attention. Senior researchers of the Korea Institute for Defense Analysis (KIDA), Kim Tae-u and Kim Min-sok, contributed an article to the September 1991 issue of PUKHAN YONGU [North Korea Research] (published by the Taeryuk Research Institute) entitled "Nuclear Weapons on the Korean Peninsula and Japan's Nuclear Policy."

Lack of Enrichment, Reprocessing Technology

These two insist that the NPT (Nonproliferation Treaty) and the IAEA (International Atomic Energy Agency) are egocentric systems established by the nuclear superpowers to protect their own vested interests. With Japan currently capable of producing nuclear weapons immediately if it decides to do so, the two Kims insist that we too must awaken to international political reality and firmly establish a realpolitik of independent nuclear capability.

These tangible and intangible moves centered around military issues also have no small number of sympathizers within the military itself. One officer who requested anonymity stated, "I am not suggesting that nuclear weapons be produced, merely that we obtain the 'capability' to do so. Is this necessarily a moral issue? The potentiality to arm ourselves with nuclear weapons is needed as a check on peripheral superpowers in the post-unification era more than as a deterrence against the North."

Advocates of developing a nuclear armament capability emphasize, "Under the current situation, the most foolish choice we could make is to develop nuclear weapons in response to North Korea's nuclear development." They emphasize that we should focus on "development of potential and peaceful use."

In order to produce nuclear weapons, a significant degree of science and technology is needed. This technology is closely related to atomic power development. That is because once the technology for the nuclear fuel cycle of atomic power generation is completed, to include refinement, conversion, enrichment, formative processing, and reprocessing, a country is judged to be capable of producing nuclear weapons. The nuclear fuel cycle refers to the process of extracting natural uranium ore from uranium mines and then refining, converting, enriching, and re-refining the ore to manufacture nuclear fuel. Once this fuel has been burned in the reactor, the spent nuclear fuel is stored and either reprocessed or discarded.

Those processes in the nuclear fuel cycle that are directly connected with nuclear weapons production are enrichment and reprocessing. There are two ways to produce nuclear weapons. One is to highly enrich uranium to purity levels above 96 percent (that used in power generation is 3 to 4 percent enriched) and using this highly enriched uranium to produce nuclear bombs. The other method is to take the spent nuclear fuel that has been used in the reactors and extracting plutonium from it through reprocessing, making nuclear bombs with this plutonium.

Nuclear bombs produced from enriched uranium are called uranium bombs, while those containing over 99 percent plutonium from reprocessing are called plutonium bombs. It was a uranium bomb that was dropped on Hiroshima, while a plutonium bomb was dropped on Nagasaki.

Our country has attained localization of nearly all technology within the nuclear fuel cycle with the exception of only the enrichment and reprocessing processes. This resulted from the tenacious pursuit of a policy to obtain self-sufficiency in atomic power technology in spite of restraints and pressure placed upon us by the United States. In sectors other than enrichment and reprocessing, Korea has achieved a 50 to 100 percent level of technology self-sufficiency, while in the case of enrichment and reprocessing that level is currently 0 percent. This is similar to having the two main arteries most important in blood circulation blocked, preventing the proper circulation of blood throughout the body.

Ever since the importation of reprocessing facilities from France was thwarted in 1976, enrichment and reprocessing have remained as obstacles, difficult but nonetheless necessary to overcome. Recently, efforts to surmount these obstacles have been carried out silently.

Officials of an unnamed industrial group and atomic power experts formed a team that visited the Soviet Union in the summer of 1990. They had the opportunity to visit Soviet nuclear research facilities and factories where nuclear materials are produced. Their visit was in response to an unofficial request from the Soviet Government to evaluate the possibilities of commercialization of Soviet atomic power technology.

At the time, the team found it difficult to even imagine such an experience in the United States or Europe. They were able to go into uranium enrichment and reprocessing facilities and view each and every aspect of the process. The United States, of course, and even Europe, which is amenable to technology transfer and inspection of facilities, do not open their enrichment and reprocessing facilities to the public.

The team even toured the Tubuna nuclear facility located some 100 kilometers west of Moscow. Tubuna has become synonymous with Soviet nuclear research facilities. Over 100 individuals involved in North Korea's nuclear research, a major subject of attention recently, are known to have come from this institute. It is surmised that there are some North Korean students studying there even now.

One official who toured this facility as a member of the team that visited the Soviet Union said that he felt two contradictory feelings concerning North Korea's nuclear development.

"It appeared as though there was no core technology related to nuclear development located at the Tubuna facility. One Soviet expert at the facility responded pessimistically when asked how he viewed North Korea's nuclear development. North Korea has been occasionally asking the Tubuna research institute questions, he noted, saying that the level at which they have been asking has not been high.

"On the other hand, the Soviet Union has a very conducive environment for North Korea's nuclear development. They are open enough to the point that they would even show us their enrichment and reprocessing facilities. The Tubuna facilities were also like that. It seems as though as long as one is determined, then any amount of nuclear technology can be extracted from there."

Agreement With Soviets on Laser Enrichment Method

The team was also able to confirm the possibility of joint ROK-USSR research on uranium enrichment technology. They exchanged opinions on the possibility of cooperation in research and development of laser enrichment methods, state-of-the-art enrichment technology that developed countries such as the United States have either finished developing or are developing at this time.

Our side showed interest in atomic vapor laser induced separation (AVLIS), a technology that uses copper laser beams. The Soviets have finished research in this area recently and are currently constructing a commercial-use facility for this purpose. The Korea Atomic Energy Research Institute [KAERI] is known to be pursuing joint development of enrichment methods with the Soviet Union.

Aside from enrichment methods utilizing laser beams, there is also molecular vapor laser induced separation (MVLIS) which utilizes carbon dioxide lasers.

Laser enrichment methods have many advantages over existing methods. Gas diffusion and centrifugal separation methods are typical of existing enrichment methods. Gas diffusion is a primitive technology developed in the early stages of nuclear power that requires a process exceeding 3000 steps to obtain highly enriched uranium over 90 percent of which can be used in making nuclear weapons. Because of this complex process, it also consumes a large amount of power.

Centrifugal separation only requires a 30-some-step process to highly enrich uranium above the 90 percent level, significantly fewer than the gas diffusion method. Even so, since a large number of centrifugal separators (running in the hundreds to thousands) are required, the facility must be large and a great deal of energy is consumed.

In contrast, laser enrichment methods require only a few laser beams (theoretically, just one shot) in order to obtain highly enriched uranium over 90 percent. Large facilities are not needed and a large amount of energy is not consumed, making it highly economical. One particularly attractive point of laser enrichment facilities for developing countries with ambitions for nuclear development is that it allows for secret enrichment of uranium in small facilities.

The controls on laser enrichment technology exercised by developed countries are stiff in proportion to the

advantages this technology affords in uranium enrichment. Although our country has had an interest in this technology for the peaceful atomic energy industry, we have not been able to actively develop it.

KAERI has been conducting multi-faceted basic research concerning the use of lasers in the atomic power industry since 1984. In 1986 they developed remote nuclear fuel processing technology utilizing lasers, and since 1988 have been investing 200 to 300 million won annually in research on atomic spectroscopy utilizing lasers.

In the book *The Thirty-Year History of KAERI* published last year, it is written: "Research and development on various equipment related to lasers is under way with the objective of increasing the power, repetitiveness, and resolution of lasers centering on copper vapor, solid, and pigmentary lasers." Among these, copper vapor lasers can be used in the atomic vapor laser induced enrichment process.

The Ministry of Trade and Industry [MTI] published the "MTI's Second Development Products List" on 1 August 1991. This publication has gained attention since it contained items directly connected to uranium enrichment to include an ultra-high speed centrifugal separator. This centrifugal separator is capable of 60,000 revolutions per minute, and can be used in uranium enrichment.

Long-Cherished Desire of the Atomic Power World—Reprocessing

Products targeted for inclusion in the "MTI's Development Products List" are agreed upon by agencies including the MTI and the Ministry of Science and Technology [MOST] with the objective of fostering the growth of state-of-the-art and basic science while developing industrial technology. After the list is announced, the MTI receives the proposed development and mass-production plans from various companies and selects companies based on the possibility of localization and commercial production. Selected companies receive various types of capital assistance benefits. In cases where the development period is short, development can take around one year.

Just as garbage can be recycled, reprocessing is both economical and important in that it extracts reusable nuclear fuel from spent nuclear fuel that has already been burned in the reactor. However, since this technology allows for the production of nuclear weapons more easily than the enrichment-based method, Korea has been tightly constrained in this area by developed countries such as the United States. Spent nuclear fuel from not only military and research reactors but also from commercial-use reactors can all be used in the production of nuclear weapons once reprocessed. The only difference is that spent fuel from power generating reactors, with a higher relative content of impurities than fuel obtained from military or experimental reactors, is not easy to reprocess.

The cost of constructing a plutonium reprocessing facility for the reprocessing of around 10 tons of spent nuclear fuel annually is 100 million dollars, relatively inexpensive (facilities for the production of enriched uranium cost 20 billion dollars). The technology is not that difficult either, with some eight countries currently conducting reprocessing operations. This is another advantage of reprocessing that has enticed North Korea to attempt to produce plutonium bombs using the Yongbyon reprocessing facility.

Scientific technicians involved in the atomic energy field are raising their voices in unison calling for obtaining reprocessing technology under the preconditions that it will be used for peaceful purposes. These calls come in spite of the possibility that it could be used strictly for nuclear weapons as well as in spite of the subsequent checks placed on this technology by the developed countries. Choe Yong-myong, chairman of the 21st Century Committee, is also the chief of KAERI's atomic energy technology policy research office. At a meeting of the 21st Century Committee held on 27 February 1991, Choe made the following assertion:

"The nuclear fuel cycle is one area that we must carefully consider, and one of the key technologies of that cycle is enrichment technology. However, rather than interpreting enrichment technology as something we must obtain without fail, we must work instead to create an environment in which we are able to conduct enrichment operations at any time once we have decided we intend to.

"On the other hand, all possible diplomatic efforts must be used to obtain self-sufficiency in the area of reprocessing technology, since it is a field of the nuclear fuel cycle essential to our furnace-style strategy and nuclear fuel development."

We suffer great losses by being unable to reprocess. First, since we are unable to use spent nuclear fuel, we need to import that much more uranium. Also there are the additional problems of storage and cost incurred in having to store the spent nuclear fuel. Looking at the Anmyeon Island incident that erupted due to the issue of a radioactive waste storage facility, it is apparent that in some aspects this incident arose due to our inability to reprocess. By the mid-1990s, our spent nuclear fuel storage facilities located within the generating plants will reach their saturation point.

Reprocessing becomes even more important to future atomic power development. High-speed breeder reactors are in the spotlight as next-generation reactors that can maximize use of nuclear fuel. These reactors require compound nuclear fuels, and reprocessing facilities are essential to the manufacture of these fuels. High-speed breeder reactors are the most efficient energy source before nuclear fission is achieved. As such, countries such as France, the United States, Japan, and the Soviet Union are hurrying towards commercializing this technology. With the reactors currently in operation, all the

earth's uranium will run out in 52 years; however, if high-speed breeder reactors are used, the supply of uranium will be extended for 3,000 years.

Rumor of Nuclear Weapons Production, Deployment in 10 Years

Circulating nuclear fuel (tandem nuclear fuel cycle) technology is also one area necessary for reprocessing. This method coprocesses the spent nuclear fuel derived from light-water reactors and turns it into fuel that can be used in heavy nuclear reactors. Coprocessing is different from reprocessing in that it does not separate plutonium from spent nuclear fuel and it reduces the concentration of uranium 235 to 0.9 to 0.7 percent.

Circulating nuclear fuel technology can be termed absolutely necessary to us, the only country in the world that possesses both heavy and light water reactors. Even though there is virtually no possibility of military use since this method is unable to separate plutonium, our efforts to develop this technology have been frustrated by pressure from the United States.

Agreeing on the economy of circulating nuclear fuel technology, a joint feasibility study was begun in 1982 between KAERI and Canada's Atomic Energy Corporation Limited (AECL). This research even advanced to the point where an agreement was made to pursue second-stage joint research in December 1983; however, the United States stepped in.

When the United States and Canada agreed on atomic energy cooperation in May 1984, the United States requested that Canada terminate the joint research that they were conducting with us. Canada then notified us of their intention to terminate. The next month, the United States officially requested to us that we terminate this research, and the research was stopped. This was the second time we tasted bitter disappointment at the hands of the United States, the first being in 1976 when importation of French reprocessing facilities was frustrated by the United States. Our atomic energy officials point out that these U.S. actions are not simply carried out because of international politics or moral reasons: Economic interests also played a large role, with the United States worrying about Korea eating away at their own nuclear fuel market.

How far has our country's potential for nuclear weapons development come, given that we lack enrichment and reprocessing technology? Have we really still failed to abandon our desire to develop nuclear weapons to such an extent that the United States continues to cast a suspicious eye upon us?

There have been many instances of analysis or news reports stating that Korea is a potential nuclear power that will be able to possess nuclear weapons within a few years. In 1977, the NEW YORK TIMES reported that Korea, together with Argentina, Brazil, and the Netherlands, were countries that required four to six years to develop nuclear weapons.

William Porter's 1982 work entitled *Nuclear Power and Non-Proliferation*, drew attention with his presentation of a "nuclear armament capability ladder." On this ladder, atomic power basic design and production technology were on the lowest rung, while nuclear weapons command and control systems were on the eighth and highest rung of this ladder. Korea was judged to be on the second rung, with a reactor in operation at the time. This is interpreted to be a deterrent rather than spur for Korea's developing nuclear weapons. It was estimated that Argentina, Brazil, and Taiwan, being one step above Korea, had obtained nuclear fission material (enriched uranium and plutonium).

President Pak's Memorandum Abandoning Nuclear Development

In 1985, THE WASHINGTON POST reported that there were no apparent indications that Korea was spurring its efforts to obtain the capability to produce nuclear weapons. This differed from its earlier estimations warning of Korea's potential nuclearization.

More concrete analysis on the nuclear armament of Korea emerged in 1987. The U.S. Army's National Defense College Institute for Strategic Studies in their report *The World in 2010 A.D.* classified Korea as part of a "group capable of possessing under 500 nuclear weapons" by the year 2010. Included in this category were North Korea, Japan, West Germany, and Taiwan.

All of these analyses and reports came from overseas. There has been no publicized self-evaluation of our potential nuclear capabilities, an evaluation that would be necessary for us to produce nuclear weapons. According to one recent secret analysis, 10 years would be required for us to make and deploy nuclear weapons given our current level of technology. There are also some of the opinion that this could take a shorter amount of time, around seven to eight years. Since both of these figures include time for deployment, the amount of time needed to actually manufacture nuclear weapons will be even less.

There are probably those who harbor suspicions of the above analysis, believing that it will take a longer amount of time. Even though nuclear development was frustrated during the President Pak era, one tilts one's head and ponders whether the manpower, facilities, and technology of that time cannot be used now....

In the course of gathering this story, attempts were made to locate the departed souls of the 1970s' nuclear development; however, it was not easy. Each of the scientific technicians who participated in development at that time have gone their separate ways, and those in charge of nuclear development who through an interview with one official who was deeply involved in nuclear development at that time, I managed to uncover several new facts. One of them was that President Pak went as far as to draft a memorandum to abandon nuclear development.

"U.S. pressure to abandon our nuclear development reached its zenith around 1977. At the time, President Pak drafted a document stating, 'We will not develop nuclear weapons as a matter of state policy.' After showing this document to an extremely small number of officials including the defense minister, he told them, 'Be aware of this.'"

"Although the defense minister was persuaded, the president did not waver in his determination. Afterwards, this document was classified as a state secret and kept in a safe in the president's office. After President Pak died as a result of the October 26th Incident, this document was passed on to his successor, President Choe Kyu-ha."

This is the first confirmation that President Pak's abandonment of nuclear development had actually even been documented. The interviewee refused any additional comment on the subject, so the objective of President Pak's drafting of such a document, and whether it is a simple domestic document or one with international validity, is not clear. The interviewee also admitted that the objective of the Wolsong heavy water reactor imported from Canada was for manufacturing nuclear weapons. Heavy water reactors, since they exchange their spent nuclear fuel daily, make the secret hoarding of plutonium easy.

Capability To Produce 75 to 90 Plutonium Bombs Annually

It is still not possible to know precisely how far our nuclear development had progressed at that time. Officials responsible for nuclear development need to break their silence in order for precise details of nuclear development to become known. Although there is fragmented testimony from those who participated in nuclear development, since compartmented development was conducted under extreme secrecy, only a general outline is known.

Regardless of how far nuclear development had advanced at that time, general consensus is that this program would be of little help to today's development of nuclear potential.

Although it is true that the technology amassed during this research was useful in developing Korea's atomic energy technology, there is no real practical use for the old technology any more since so much new technology has emerged since then.

Currently our country is the 10th atomic power country in the world, with nine active atomic power plants in operation. Among these, only one is heavy water while the remaining eight are all light water reactors. These reactors discharge spent fuel containing 480 to 540 kilograms of plutonium annually. This is enough plutonium to produce 75 to 90 20-kiloton-class atomic bombs (equivalent to 20,000 tons of TNT), similar to the bomb dropped on Hiroshima.

Even after nuclear development was frustrated, the flame of our long-cherished desire to achieve localization of atomic energy technology—for peaceful purposes, of course—has been kept burning. The reprocessor project that the United States had been most sensitive about has been replaced by the pursuit of facilities for uranium refining and transforming, post-irradiation testing, and radioactive waste treatment facilities. With the use of the term reprocessing regarded as taboo, this project is called the chemical processing alternative plan as well as the French loan project.

In the 1980s, the highest priority task being pursued was the localizations of nuclear fuel. Using nuclear fuel processing test facilities imported with French loans, KAERI succeeded in developing nuclear fuel for heavy water reactors in 1986. Since 1987, this has provided all the nuclear fuel consumed by the Wolsong heavy water reactor. Development for light water reactor fuel has been under way since 1985. The development of new nuclear fuel to be used in reactors is currently at a stage where final design has been finished.

Responsibilities were allocated among the 16 agencies involved in atomic energy development in 1985 in order to eliminate duplicate investment and to make the pursuit of efficient projects possible. Korea Electric Power Company [KEPCO] took responsibility for overall project administration; KAERI took power generating reactor systems and nuclear fuel design; Korea Energy Technology was given systems design of auxiliary equipment; the Energy Research Institute was assigned nuclear vapor systems and design of nuclear fuel; the Korean Nuclear Fuel Company was put in charge of manufacturing nuclear fuel; and Korea Heavy Industries Company [KHIC] was tasked with design and manufacture of power generating reactor systems and auxiliary equipment.

As a result of these efforts, by 1988 self-sufficiency levels of technology were raised to their current levels of 66 percent in nuclear fuel production (formative processing), 57 percent in materials production, and 71 percent in design engineering.

Within the reactor field, self-sufficiency levels are 70 percent for systems analysis, 50 percent for reactor production, 75 percent for reactor construction design, and 100 percent for operation. By 1996, when the Yongkwang number three and number four reactors are completed—the first to be produced with the joint design of major contracting companies—it is expected that these rates of self-sufficiency will markedly increase. At this time, independent design of the most complex and difficult to build reactor will be possible.

Need To Clarify Peaceful Usage

Although lacking enrichment and reprocessing technology is similar to having no toenails or teeth, there is one facility that the United States is paying particularly close attention to. This is the post-irradiation test facility located within KAERI. This facility takes the spent

nuclear fuel from the Kori atomic power plant and measures the fitness of the reactor and nuclear fuel by inspecting and comparing such items as combustibility state, fuel transformation, design feasibility, and actual combustibility.

This facility, which has been in full operation since 1987, alarms the United States in two aspects. One is that it is the only place where spent nuclear fuel is carried outside of the atomic power plant. Another reason is that the technology amassed in operating this facility is applicable to reprocessing. Because of this, the United States has placed restrictions such that even after conducting various tests and inspections, the fragments that come out from the facility are gathered for accountability.

The United States is also closely watching the KMRR (Korea multipurpose research reactor) currently under construction. The KMRR has long been a pet project of scientific technicians, with the Trigger Mark II and III research reactors aging. This was jointly developed with Canada's AECL. With a total budget of 80 billion won, its planned completion is the end of 1992.

Like North Korea's Number Two research reactor, it is a 30 megawatt reactor that uses 20 percent enriched uranium. Since the KMRR is capable of being remodelled in time of emergency to be a plutonium-producing reactor, it is drawing the attention of the United States.

Scientific technicians dedicated to the field of atomic energy emphasized that it would be absolutely impossible for our country to secretly develop nuclear weapons, even if we obtain sensitive technology (enrichment and reprocessing facilities).

Since we undergo thorough observation by the IAEA, not only is it impossible to extract nuclear material, but secret facilities can not be built. Additionally, unlike the President Pak era, secret organizational administration is impossible. Another item important in nuclear development is the willpower of the state leadership. The question that must be asked then is does our leadership really have the determination to pursue nuclear development?

Therefore these scientists insist that we must work more actively to secure this sensitive technology openly and fairly. As a precondition for this, they claim, a unanimous voice is necessary.

In other words, "clarification" by our national leaders that "our atomic energy will be used for peaceful purposes and nuclear weapons will not be made" is needed. Although the piercing glare of the United States has softened as a result of efforts over the past 10-plus years, it is generally believed that U.S. distrust of our nuclear intentions has not disappeared due to reasons such as the continuing North-South confrontation. Atomic energy scientists and technicians are hopeful that clarification of our position by our leadership can form the basis for completion of the nuclear fuel cycle.

In this regard, these scientists are expressing their concern over the theory recently being presented by some corners of the military advocating development of nuclear armament potential. The scientists point out that no matter how much these advocates of nuclear armament potential emphasize that it is only potential to arm that they are calling for, overseas observers will only think of the military aspects since these calls are originating from within the ROK military. They will therefore be immediately suspicious. It is highly probable, the scientists claim, that this will only aggravate the situation.

Concerns of "Aggravating the Situation"

One expert who was deeply involved in atomic energy policy stated, "In spite of many worries, we are headed in the direction of completing the nuclear fuel cycle. Rather than pursuing completion of the nuclear fuel cycle amidst great hoopla, it is more effective to have an organic synthesis of academia, research institutes, and industry steadily accumulating technology by sector."

One former high-level bureaucrat of the MOST also revealed that there were many instances where he received suggestions concerning the localization of atomic energy technology while travelling around atomic energy related institutions overseas.

"Europe in any case is more amenable to atomic energy technology transfer than the United States is. When I went to one company in France, this is what the cadre there told me: 'There are many instances where we would like to provide technology, but are unable to do so due to international conditions. It would be less of a burden for us for a researcher from your Agency for Defense Development or a researcher for a civilian company comes asking for the same exact technology.'"

"Although it seems like a simple problem of technique, I got the impression that it was an important distinction."

Advocates of developing a nuclear armament potential, even while admitting such responses exist, retort that we must look at reality. Sure it would be good to quietly accumulate technology by sector similar to the way Japan did, and complete the nuclear fuel cycle. But, they ask, can we really actively pursue atomic energy technology development in our current situation?

One expert on nuclear affairs asserted:

"If we intend to carry out basic research by sector such as academia and research institutes, we need an efficient control and guidance agency, national will, and a budget. However, the current reality does not allow for that. Not only is our research budget small, there is no organization that can forcefully pursue such development. This is because basically the government's determination to pursue this is weak."

He added, "We must therefore attempt to form a consensus through public debate and actively pursue development as a matter of state policy, even if it is a somewhat sensitive proposal."

Those who advocate development of nuclear capability point to the cold realities of international politics as well as the internal contradictions of the nuclear nonproliferation system. No matter how dominant the mood of reconciliation may be in the current era, the reality is that "power" continues to dominate the international stage. Even while the nuclear superpowers have formed control organizations such as the NPT [Nuclear Nonproliferation Treaty] to block nuclear armament within the Third World, they themselves have increased the numbers and capabilities of their own nuclear inventory.

There is not a lack of points on which advocates of developing nuclear potential and international political scientists share a consensus. Professor Ha Yong-son of Seoul National University [SNU] in his 1983 book entitled *Nuclear Proliferation, World Order, and Korea*, pointed to the negative side effects of the nuclear proliferation control system. He asserted that a more decentralized and diverse world security and political system is necessary in order to begin to solve the nuclear proliferation problem.

Currently, however, the control of the superpowers over nuclear proliferation is instead getting stronger.

Nuclear Systems Centered Around Superpowers

A U.S. delegation related to atomic energy visited Korea at the peak of the Gulf war on 7 February. They came to consult with Korea over a new set of atomic energy export control directives and product lists. This plan, entitled "Directives for the Transfer of Nuclear-Related Equipment, Materials, and Technology," is alarming Korean atomic energy officials in that it increases the number of items targeted for export controls.

This plan is being jointly pursued by the United States, Japan, and the EC since last year as concern increased over the relaxation of Cocom [Coordinating Committee for Multilateral Export Controls] export controls. They have found good justification in the recent nuclear development programs of Iraq and North Korea and appear ready to pursue this at a rapid rate.

There was no small number of Korean international political scholars in the 1970s who advocated that we should secure the nuclear option. Professor Yi Ho-chae of Koryo University publicly raised the Korean nuclear policy issue during the mid-1970s when nuclear debate was taboo. In 1977, Professor Yi in a thesis entitled "Directions for Independent National Defense and Diplomacy," caused a stir when he called for nuclear power development which inferred nuclear weapons potential.

At the time, his point was misconstrued and reported as though he was saying that Korea must immediately arm

itself with nuclear weapons. In his 1981 work Yi reveals, "At that time, I certainly did not advocate Korea's nuclear armament. I simply raised the nuclear debate, a debate that is necessary for us to develop a Korean nuclear policy centered around our own interests."

SNU Professor Ha Yong-sor in his work quoted above revealed his positive attitude toward securing a nuclear potential by stating, "The potential nuclearization of Korea is not something that will inflict decisive harm on the stability of the world order. It is something that will have the effect of equalizing the United States alliance system within the Northeast Asian region by causing a change in the world-wide and regional deterrence system the United States has maintained until now."

The international political scientist Kaplan proposed a unit veto international system in the mid-1950s in which every country in the world would possess nuclear weapons and hold veto power. This was a radical model that viewed international politics as a state of conflict (Hobbesian) with war where every man against every other man.

According to this opinion and view, the nuclear option is something that is necessary and justified. However, these are opinions from 10 to 30 years ago; international politics has changed considerably since then. Since the mid-1980s, the arms reduction atmosphere has heightened with the INF (Intermediate-range Nuclear Forces) and START (Strategic Arms Reduction Talks) based on a spirit of reconciliation between the United States and the Soviet Union. Within dynamic international relations, the relative importance and role of military power is shrinking.

Japan As Primary Potential Enemy

In spite of this, the defense policy for the unification period best represented by the XX [as published] plan referred to above emphasizes the importance of military power in the post-unification era as well as the necessity for a variety of strategic weapons to restrain peripheral powers. Among the strategic weapons known to be under consideration are the nuclear option, the medium-range ballistic missile (range 200 to 1000 kilometers), and a strategic early warning system.

Like a porcupine's needles, these weapons would prevent other countries from easily challenging us. They are necessary to remind potential adversaries that we are capable of dealing them a great blow should they attack us.

The point within the XX [as published] plan that is drawing so much attention is the establishment of relations with the superpowers, particularly Japan. With the North Korean military threat reduced or eliminated in the unification process or after unification, our national defense strategy must redefine its targets as being the peripheral countries around us.

The problem here lies in deciding the most dangerous threat to us; that is, our number one potential enemy. This is because operational tactics, manpower deployment, and weapons systems will change depending on which country is chosen.

There are some who would criticize that choosing a potential enemy is in itself an irrational and cold way of thinking. However, the dominant assertion is that at this point in time, Japan must be judged as our number one potential enemy. In particular, when the ROK-U.S. alliance disappears and equidistant diplomacy with each of the four peripheral superpowers is pursued, the threat from Japan is assessed as being the highest.

The fact that Japan currently possesses the nuclear option is the primary impetus for us to have the nuclear option as well. Japan, as the world's fourth atomic energy country, is able to produce nuclear weapons whenever it wishes since it has the technology for enrichment and reprocessing facilities. Japan is also actively pursuing next-generation technology development such as high-speed breeder reactors, nuclear fission, and laser enrichment.

There are also some who fear what will happen when Japan combines these capabilities with its world-level aerospace and electronics industries. In the thesis mentioned above by Kim Tae-u and others, they warn that Japan long ago crossed the threshold of being a non-nuclear country. Even though they currently espouse the three principles of non-nuclearization, when their current potential meshes with their "policy for becoming a major country" and their recent "right-face syndrome," there is a danger of Japan becoming a nuclear superpower as well.

It is a widely known fact that Japan views North-South Korean unification negatively. It is an openly known secret that Korea is regarded as Japan's fourth potential enemy behind the Soviet Union, North Korea, and China.

Those who oppose securing the nuclear option and placing Japan as our number one potential enemy have a formidable counter-argument. One university professor well-versed in nuclear affairs clarified his position of opposing the nuclear option.

Theory of Unnecessity of Nuclear Potential

"One must bear in mind not only changes in the Korean peninsula but changes in the political situation in Northeast Asia as well. Within a changed Northeast Asian environment, politics, economics, and science and technology will have a greater influence than military means in the future.

"Accordingly, we must give higher priority to political and diplomatic power in our national strategy than military power. Although a minimal amount of military power sufficient for defense is necessary, I believe there would be greater disadvantages than advantages in

securing the nuclear option. It will unnecessarily incite peripheral countries, so what benefit could it be to us?

"Although clarification of the peaceful use of atomic energy by our leaders and completion of the nuclear fuel cycle is desirable within the atomic energy field, it is questionable whether the superpowers would believe our leadership when they make such a pronouncement given the continued confrontational state between North and South. I think that since our state resources are limited, we must redirect our priorities to the economic and political sectors rather than on completion of the nuclear fuel cycle."

Currently, the relative weight of atomic power in Korea's energy supply is great. It accounts for 13.3 percent (in 1988) of domestic energy demand right behind petroleum, bituminous coal, and anthracite coal. This rate is expected to rise to 16.8 percent by 2016. The relative weight of atomic energy in electric power supply is even greater. Atomic energy accounted for 46.9 percent of the total amount of energy generated in 1988 (nuclear facilities have 33.4 percent of total generating capacity) and by 1999, that figure is expected to rise to 50.3 percent.

In August 1990, MOST published an in-depth research report that will become the framework for the future of atomic energy. KAERI drafted the report as a special research development project of MOST. This "In-depth Investigative Research for Strategic Development of Atomic Power and Technology" is a massive work of over 1,500 pages produced by dozens of researchers with the advice of experts in the field.

In the report, it is written that atomic energy development at the science, technology, and energy levels is necessary, and that reinforcement of atomic energy policy functions, establishment of a self-sufficient system for atomic energy technology, propagation of atomic power diplomacy, and the formation of a national consensus concerning atomic power is necessary for the sake of establishing a rational long-term atomic energy development strategy.

This report also describes a project plan for the priority promotion by sector of technology related to the nuclear fuel cycle, radioactive waste management, and atomic power safety. Within the reactor technology sector, Korea is to independently develop a 150 megawatt E-class [as published in English] high-speed breeder reactor by 2010 as well as an improved-model light water reactor and new-model safety reactor.

Within the nuclear fuel cycle technology sector as well, it is said that development is being actively pursued in the areas of circulating and compound nuclear fuel and laser spectroscopic technology. Research continues on circulating nuclear fuel, that had earlier been terminated due to U.S. pressure. A total of 46 billion won has been invested in this research. Basic research is to be completed this year, with development of commercial technology between 2007 and 2016. Plans also call for the

development of compound nuclear fuel used in high-speed breeder reactors by the year 2016.

Laser spectroscopic technology is directly related to new nuclear fuel materials development as well as uranium enrichment. With a total investment of 161 billion won, completion of this project is expected by 2016.

There are still many mountains to be crossed before this ambitious plan can be realized. The most urgent matters are budget and manpower problems. The total budget dedicated last year to atomic energy related projects was 1.7 trillion won.

The budget of the quintessential research organ KAERI was 130 billion won in 1990; however, only 21 billion of this was government assistance. A good contrast to this is Japan, which revealed early this year that 1.8 trillion won of the science and technology ministry's budget would be invested in atomic power research.

As of 1989 there were some 15,000 individuals involved in research and technology development domestically. Of these, around 1,500 had doctorates. As of 1990, KAERI had 1,721 individuals (219 doctorates), less than the 3,500 of Japan's PNC (nuclear fuel cycle company) and the 2,400 of JAERI (Japan Atomic Energy Research Institute).

Independent Development of High-Speed Breeder Reactor

Coordinating opinions between offices concerning atomic energy policy and overcoming the problem of mistrust among the citizens toward atomic power are two other issues that must be dealt with. Atomic energy issues are currently handled by MOST together with the Ministry of Energy and Resources [MER]. MOST is the responsible office; however, since KEPCO, which constructs and operates atomic power plants, is subordinate to the MER, responsibilities are shared between the two ministries.

There is said to be frequent friction between the two ministries over budgetary matters. MOST is tasked with research and development, while the MER is entrusted with construction and operation of atomic power plants. MER controls the purse strings, while MOST attempts to secure as much money as possible for its operations.

The accidents at Chernobyl and Three Mile Island are two prime examples of atomic energy's safety problems. The safety problem causes a strong sense of crisis as well as opposition among the people. The Anmyon Island incident also provided a direct example of just how strong the people's distrust of atomic energy is. While admitting that atomic power is not perfect, atomic energy officials emphasize that they are working towards improving safety.

With it being so difficult to develop atomic energy technology on one's own, securing international cooperation and trust is also important. It is obvious that if the plan introduced above is pursued under the current

circumstances, then developed nuclear countries to include the United States will apply the brakes.

Therefore it is necessary to clarify our intentions to continue to adhere to the agreement of the IAEA that we are currently following and to use atomic energy for only peaceful purposes. We must convince the international community of this fact as well.

This is where the need for so-called atomic energy diplomacy arises. The unequal ROK-U.S. atomic energy agreement is pointed to as one topic that must be solved through atomic energy diplomacy. Our side has been dissatisfied with this agreement since it stipulates that we must obtain prior approval from the United States on each and every item concerned with individual projects related to atomic energy.

In 1986, Japan revised the U.S.-Japan atomic energy agreement with a "comprehensive restriction clause," such that they became able to reprocess fuel without U.S. approval. The success of this atomic energy diplomacy is judged to be the result of tenacious efforts on the part of not only government but academia, politicians, the press, and industry as well.

It appears as though Korea's atomic energy program is at a stage where it must either leap over the barrier that blocks the path to the future or continue on contentedly. Internationally, an environment conducive to acquiring atomic energy technology has been created since the 1980s. It is a consumers' market with an excessive supply. No matter how lucrative the international environment may become, if we are not able to take advantage of it then it is of no use to us.

Only President Can Make Decision

Both atomic energy officials and those advocating development of nuclear potential are expressing their concern over the proposal for the denuclearization of the Korean peninsula that has been emerging so powerfully lately. This is because of the strong possibility that a denuclearization plan for the Korean peninsula will be accepted before our government has guaranteed that it will obtain permission from the United States to complete the nuclear fuel cycle. If so, completion of the nuclear fuel cycle will either become more remote or impossible altogether.

The theory of developing nuclear capability best exemplified by the XXX plan may indeed bring on the adverse side effects of worsening the situation, as many atomic energy officials are worrying. With denuclearization of the Korean peninsula being debated within the current international arms reduction mood, development of nuclear potential could appear as reactionary squirming. It is also true, however, that in reality the theory calling for nuclear potential has appropriateness as well. The theory's highlighting of the lack of a Korean nuclear policy and its urgent demand for establishing a policy also have their positive aspects. This may give impetus to our passive policy decision makers who for

some time were unable to even use the term reprocessing out of concern about U.S. response.

One expert familiar with atomic energy and international political affairs emphasized the following cautious conclusion:

"Just as nuclear issues are not simply limited to military aspects, the question of developing nuclear potential is a complex and important issue that encompasses not only military but political, economic, diplomatic, and scientific and technological angles as well."

Accordingly, the people must recognize this issue not as someone else's problem but as one that is their own, a nation-state issue. They must draw up a profit-loss statement and calculate the advantages and disadvantages. Of course, the only person who can take this profit-loss state and make the final decision and determination is the president and the president alone.

Talks on U.S. Nuclear Arms Withdrawal Scheduled

*SK0410104391 Seoul YONHAP in English 1012 GMT
4 Oct 91*

[Text] Seoul, Oct. 4 (OANA-YONHAP)—Timetable for withdrawal of U.S. tactical nuclear weapons from South Korea is an urgent issue, and Seoul and Washington will soon hold talks on it, Vice Foreign Minister Yu Chong-ha said Friday.

Yu refused to say exactly when the talks will be held, saying it must be agreed upon by the two sides.

Yu similarly hinted Seoul will make a progressive proposal to Pyongyang at the fourth inter-Korean prime ministers' talks later this month, saying a non-aggression pact demanded by North Korea is not enough to improve Seoul-Pyongyang relations.

Yu, appearing before the National Assembly Foreign Affairs-Unification Committee, said South Korea and the United States will soon negotiate the timetable for pullout of American tactical weapons, hinting early withdrawal of U.S.-deployed nuclear arsenal.

There is no proof that North Korea will refuse outside inspection of its nuclear facilities, Yu told the committee. North Korea is more likely to allow inspection considering the current political climate and its interest.

If North Korea continues to delay it, the United States, Japan, China, the Soviet Union and all other members of the International Atomic Energy Agency will put heavy pressure on Pyongyang, Yu predicted.

The non-aggression pact demanded by North Korea is not enough by itself to greatly advance inter-Korean relations, the vice foreign minister said.

Considering South and North Korea's parallel entry to the United Nations, the two sides will work on a more well-balanced proposal at the inter-Korean prime ministers' talks, he said.

No Warns North of Sanctions for N-Arms Program

*SK0410131491 Seoul YONHAP in English 1242 GMT
4 Oct 91*

[Excerpt] Seoul, Oct. 5 (OANA-YONHAP)—President No Tae-u on Friday warned North Korea of possible international sanctions if it goes ahead with its nuclear weapons development plan and urged Pyongyang to sign the nuclear safeguards accord.

North Korea's refusal of international inspection on its nuclear facilities shows it still has not abandoned high-risk military tactics, No said in an interview with the vernacular daily KYONGHYANG SINMUN on its 45th anniversary.

To take any action in disregard of this reality may invite military threat, No said, implying opposition to South Korea's unilateral arms reduction. [passage omitted]

Kim Il-song Cited on Allowing Nuclear Inspections

*SK0210172491 Seoul KBS-1 Television Network
in Korean 1540 GMT 2 Oct 91*

[From correspondent Chon Yo-ok in Tokyo]

[Text] Japan's (TBS) television reported that North Korea's President Kim Il-song stated that if inspection of U.S. nuclear facilities stationed in South Korea is carried out then North Korea will also accept nuclear inspection from the International Atomic Energy Agency.

(TBS) television reported on the evening of 2 October that in a meeting with President Kim Il-song while visiting Pyongyang late last month, Mr. (Yasai), president of Japan's (Iwanami) publishing house, revealed that President Kim Il-song said that North Korea was willing to accept nuclear inspection if conditions such as the United States allowing inspections of its nuclear facilities stationed in South Korea are achieved.

This is the first time for Kim Il-song to personally talk about the issue of North Korea's nuclear inspection.

North Allegedly Sold Scuds to Iran, Syria

*SK2109154291 Seoul KBS-1 Radio Network in Korean
1500 GMT 21 Sep 91*

[Text] Yonhap, Cairo—The AL-AHRAM, an Egyptian Government-controlled paper, reports that North Korea provided 300 Scud missiles to Iran, and another 20 Scud missiles to Syria. The paper reports that Libya signed a contract with North Korea on purchasing missiles as well.

Government Takes DPRK to UN on Nuclear Accord

SK1909062191 Seoul *TONG-A ILBO* in Korean
14 Sep 91 p 1

[Text] It was learned on 14 September that, because North Korea expressed on 13 September its intention to refuse signing the nuclear safeguards accord, the ROK Government is considering a plan to take this issue to the United Nations.

A high-ranking government official said on 14 September: "If North Korea continuously postpones the signing, we will have no alternative but to take this issue to the United Nations for discussion." He also said: "The government is considering a plan to have the Political, Military, and Security Committee, the first committee of the UN General Assembly, discuss this issue first and then adopt a resolution urging North Korea to sign the accord on our country's motion alone or on the joint motion of some member countries."

He also said: "Previously, the ROK could not present a resolution to the General Assembly because it was not a UN member." He also said: "Because both North and South Korea entered the United Nations and automatically became members of the first committee, we can present resolutions."

He also said: "We can take the issue of North Korea's signing of the accord to the Security Council. However, we are not considering such a plan for now." He added: "If North Korea refuses to the end to sign the accord, we cannot exclude from our consideration a plan to have the Security Council adopt a pertinent agenda and pass a resolution to that effect."

North Leader Said To Admit Nuclear Arms Program

SK2509111791 Seoul *CHUNGANG ILBO* in Korean
25 Sep 91 p 1

[Report from Hong Kong-based correspondent Chon Taek-won]

[Excerpts] A high-level official in Beijing said on 25 September: North Korea recently informed the PRC of its decision to possess nuclear weapons and called on the PRC to approve this. Immediately after the failure of the coup attempted by the military conservative forces in the Soviet Union, North Korea held a secret meeting with high-level cadres of the Communist Party of China in Pyongyang late last month. North Korea then informed the PRC of its decision to own nuclear weapons in order to adhere to the system of socialism. It also called on the PRC to approve this.

The official said: Kim Yong-sun, secretary of the North Korean Workers Party of Korea, who participated in the meeting as a delegate on the North Korean side, informed Zhu Liang, head of the International Liaison Department of the Communist Party of China, of its

decision, saying that our party (North Korean Workers Party of Korea) has decided to own nuclear weapons in order to prevent the West from perpetuating the division of the Korean peninsula.

It is said that Secretary Kim Yong-sun, explaining North Korea's decision to own nuclear weapons based on its analysis of the Soviet coup, had called on the PRC to approve this because the PRC, as a socialist country, is also facing a crisis in maintaining the system of socialism after the coup in the USSR.

It draws our attention to the fact that North Korea's notifying the PRC of its decision to have nuclear weapons shows that it is capable of developing and possessing nuclear weapons in order to arm itself. [passage omitted]

The PRC, until now, has not informed North Korea of its position on the DPRK decision to possess nuclear weapons.

On 18 September, the day after North and South Korea's simultaneous entry into the United Nations, North Korea said that it would sign the Nuclear Safeguards Agreement if the United States and South Korea would not pose a nuclear threat to North Korea and if the United States would withdraw nuclear weapons from South Korea.

It has been assessed that the possibility that North Korea will sign the conditional agreement shows that it has a double-edged strategy.

Measures To Stop North N-Arms Program Planned**Economic Sanction Suggested**

SK0410044491 Seoul *YONHAP* in English 0430 GMT
4 Oct 91

[Text] Seoul, Oct. 4 (YONHAP)—The government, convinced that North Korea hasn't changed its nuclear policy, has decided to work out measures to stop Pyongyang from developing nuclear weapons, a government source said Friday.

The decision came after North Korean Prime Minister Yon Hyong-muk delivered a speech Wednesday at the United Nations General Assembly in which he repeated the past North Korean position on nuclear arms.

The road will be open, he said, for his country to agree to international inspection of its nuclear facilities if the United States withdraws its tactical nuclear weapons from South Korea.

U.S. President George Bush said last week that he will scrap all land-based nuclear weapons in Europe and Asia, the type believed to be deployed in South Korea.

Despite Bush's pledge, however, Yon simply reiterated his country's position in his speech. North Korea has

said it will open its nuclear facilities only after the United States withdraws its nuclear arms from South Korea.

If North Korea continues to adhere to this policy at the 4th inter-Korean prime ministers meeting in Pyongyang on Oct. 22, South Korea will have to re-evaluate its security policy in the Korean peninsula, said the source who insisted on anonymity.

According to this source, the new measures may include a possible resolution at the United Nations General Assembly or the Security Council designed to press Pyongyang to open its nuclear facilities or to impose an economic sanction against North Korea.

The government plans, he said, to work out measures at meetings of cabinet ministers concerned with national security. The first meeting is likely to be held after Foreign Minister Yi Sang-ok returns home from the United Nations on Sunday.

The government is expected to launch a diplomatic initiative to persuade the Soviet Union and China to pressure North Korea to abandon its intention of developing nuclear weapons, the source said.

He said the government also plans to work closely with the United States in formulating its new policy toward North Korea. The government is scheduled to discuss issues related to the North Korean nuclear program at the annual U.S.-South Korean security consultation meeting to be held in Honolulu in November and during Bush's visit to South Korea later in the year, he said.

Use of Force Ruled Out

SK0410061091 Seoul YONHAP in English 0559 GMT
4 Oct 91

[Text] Seoul, Oct. 4 (YONHAP)—Vice Foreign Minister Yu Chong-ha on Friday ruled out a possible use of forces against North Korea's nuclear facilities.

Speaking at a National Assembly Foreign Affairs and Unification Committee hearing, Yu said the government is contemplating "nothing other than diplomatic efforts" to help prevent North Korea from developing nuclear weapons.

Yu made the remark a week after Defense Minister Yi Chong-ku hinted a possible military strike against North Korean nuclear facilities.

Yu also said the government will discuss with the United States on President George Bush's announced plan to withdraw tactical nuclear weapons from Asia.

"But the U.S. nuclear weapons withdrawal plan cannot be the subject of our negotiations with North Korea," Yu said.

Yu said there will be no change in the U.S. and South Korean policy of opposing the de-nuclearization of the Korean peninsula as long as North Korea refuses to sign

the nuclear safeguard accord and open its nuclear facilities to international inspection.

Regarding the annual U.S.-South Korean military exercise, codenamed "Team Spirit," Yu said it is recognized internationally as a defensive rather than offensive exercise. As such, he said the government does not feel the need for its suspension as demanded by North Korea.

IAEA Members Pass Resolution Aimed at DPRK

SK2009093991 Seoul YONHAP in English 0914 GMT
20 Sep 91

[Text] Vienna, Sept. 20 (OANA-YONHAP)—Twenty-three member nations of the International Atomic Energy Agency (IAEA) on Thursday [19 September] adopted a resolution urging the Agency to assume stronger authority in conducting nuclear inspection on its members.

The move is interpreted as an action aimed at North Korea which is delaying its signing of the nuclear safeguards accord and Iraq which was found to own considerable amount of nuclear materials by a U.N. inspection team.

The resolution, signed by nations, including South Korea, Japan, the United States and the Soviet Union, contains four articles. It calls for preventive measures against non-peaceful use of atomic energy and strengthening and maintaining of inspection duties.

The IAEA Board of Governors, which will meet next February, is to discuss specific ways to strengthen its authority on nuclear inspection.

North Korea, which joined the Nuclear Non-Proliferation Treaty (NPT) in 1985, is yet to sign the nuclear safeguards accord with the IAEA, a duty due within 18 months of joining the NPT.

It agreed on the standard agreement of the safeguards accord with the IAEA on July 16 but has delayed in officially signing it.

'Action' To Stop North Nuclear Arms Threatened

SK2709070191 Seoul YONHAP in English 0645 GMT
27 Sep 91

[Excerpt] Seoul, Sept. 27 (YONHAP)—South Korean Defense Minister Yi Chong-ku, warning that military action was a likely option to halt North Korea's nuclear program, said Friday that nuclear reprocessing facilities at Yongbyon would probably be completed in 1993, [punctuation as received]

The plant would enable North Korea to extract 718 kilograms of plutonium a year from its 30-megawatt nuclear reactor, which has been in operation since 1987, and 50 kilograms a year from a reactor due for completion next year, Yi told a National Assembly hearing.

It has not been confirmed whether North Korea has high purity plutonium that can be converted into nuclear bomb, he said. [passage omitted]

TAIWAN

New Missile Frigate To Upgrade Naval Forces

OW0310092691 Taipei CNA in English 0755 GMT
3 Oct 91

[Text] Taipei, Oct. 3 (CNA)—The first of the eight missile frigates ordered by the Navy is scheduled to be launched Saturday in Kaohsiung as a part of the nation's plan to upgrade its naval combat capabilities.

The frigate, built by China Shipbuilding Corporation (CSBC), was modeled after the United States' Perry-class frigate "FFG-7" and is equipped with 40 mm guns, electronic warfare equipment and Hsiung Feng II surface-to-surface missiles developed by the Chungshan Scientific Research Institute.

The Navy and the China Shipbuilding Corporation signed a contract in May 1989 to build eight such frigates. The battleships are expected to boost the Navy's anti-submarine, cruise and air defense capabilities, and will help protect the Taiwan Strait and neighboring waters.

CSBC has signed a technology transfer contract with BIW, an American Shipbuilding Company, allowing it to be responsible for the building of the hull of the frigates, while Chungshan Scientific Research Institute designed the ship's weapons systems.

Government Firm on Building New Nuclear Plant

OW0510213591 Taipei China Broadcasting Corporation News Network in Mandarin 2300 GMT
4 Oct 91

[Excerpt] Wang Chao-ming, Executive Yuan secretary general, yesterday [4 October] stated clearly that the government's plan to build its fourth nuclear power plant will not be affected by violence against its construction. Work on the plant will be carried out as planned, and the Ministry of Economic Affairs will go all-out to communicate with the people. Wang Chao-ming said: The government stressed that the plan for the fourth nuclear plant must be carried out without affecting environmental protection. The government's stand is

very clear-cut and will definitely not be affected by violent action. He said: The Ministry of Economic Affairs and the Taiwan Power Company will go all-out to communicate with the masses. The government will do what is required of it, but it definitely will not tolerate illegal actions. Wang Chao-ming said: It is not possible for everyone to accept or agree with the government's policies. However, the government certainly has the sincerity to conduct communications and minimize resistance.

At the fourth nuclear power plant at Yenliao [sentence as heard] yesterday, the Minister of Economic Affairs Hsiao Wan-chang said: Clashes on 3 October between the police and people will not affect the plan to construct the fourth nuclear power plant. Construction of the plant will go on as originally planned, but will not be speeded up. He will appoint people specifically charged with strengthening communications with Kungliao's people. [passage omitted]

Editorial on F-16 Purchase, Mainland Arms Sales

OW2509040891 Taipei CNA in English 1358 GMT
24 Sep 91

[Editorial published in EXPRESS NEWS, a CNA newspaper, on 24 September: "An Odd Man Out"]

[Excerpt] Taipei, Sept. 24 (CNA)—Mainland China has become an odd man out. While all major military powers are moving toward agreement on arms curbs, Peking stands out for producing more weapons for sale overseas.

In addition, Mainland China has refused so far to join the Missile Technology Control Regime, an agreement intended to curb the spread of missiles. Nor has it joined the Nuclear Non-Proliferation Treaty, though [words indistinct] saying it would do so.

Peking's arms sales abroad is aimed at scraping together more hard currency to help prop up the sagging economy. That, however, is not the only aim. In the last half year, Mainland China has sent Pakistan M-11 missiles, which can carry nuclear warheads and could be used against India. Peking is also selling Syria its new M-9 missiles, which would be used to strike targets throughout Israel. And while selling arms abroad, Mainland China is trying to buy better weapons from overseas. Peking is purchasing Soviet Sukhoi Su-27 fighters, and the payment is reported to have been made in kind: consumer goods for the Russians and guns and ammunition for the Burmese. [passage omitted]

BULGARIA

Reportage on Kozloduy Nuclear Power Plant

Personnel Lack Threatens Safety

AU2709180791 Sofia 24 CHASA in Bulgarian
21 Sep 91 p 4

[Report by Dimitur Genchev]

[Text] The safety of the Kozloduy Nuclear Power Plant is on the edge of permissible levels, Mr. Ivan Selin, president of the United States Nuclear Regulatory Commission, told journalists on 20 September. If measures are not taken, the plant must be closed down, he added.

He went on to say that a lack of trained personnel was the main reason for this. Scarcely 8-10 percent of the staff have the necessary training, and, until specialists are secured, all investments are pointless, even though \$2 billion are needed.

We are ready to help but only after we see that the Bulgarian Government is willing to improve the plant's condition. It is indeed discussing the problems with the West but is not taking any specific action, he claimed.

Bulgaria's dependence on the Kozloduy Nuclear Power Plant must decrease because the possibilities for nuclear energy production are limited. New sources of electric power are necessary, and the plant must work at 50 percent of its nominal power, he believes.

Despite the personnel problems, the general condition of the plant is good and gives a basis for optimism, Mr. Selin pointed out and added that the positive changes that have taken place are significant. The safety of the fifth and sixth reactors is better than that of the other four reactors, which are also stable if they are exploited normally.

Nevertheless, if the plant were in California, we would certainly have closed it down, he stated.

International Control Welcomed

AU2809140991 Sofia BTA in English 2113 GMT
27 Sep 91

[Text] Sofia, September 27 (BTA)—The President of the London-based European Bank for Reconstruction and Development has sent a letter to Prof. Todor Dimchev, head of a team of Ecoglasnost experts, welcoming their proposal to set up an international consortium for the control, operation, reconstruction and ensuring the safety of the Kozloduy Nuclear Power Plant. The letter was made public at the press center of the Union of Democratic Forces (UDF) today.

According to Prof. Dimchev, there are not adequate conditions in Bulgaria to develop nuclear power engineering. The four reactors at the plant whose technology was approved on political grounds should be stopped

one by one and for ever, he said. Prof. Dimchev recalled that 60 Bulgarian scholars had recently signed a special memorandum, arguing that the reconstruction of the reactors is impossible under the present conditions in Bulgaria. According to the document, which was ignored by the government, the experience so far has shown that foreign technological inspections and financial help could not be effectively used in the conditions prevailing in Bulgaria.

It became known that the 12 million ECU [European Currency Unit] granted by the European Community are not intended for the reconstruction of the plant but for carrying out an expert inspection.

In its letter the European Bank assures the Ecoglasnost experts that it will monitor the fulfilment of their project and will adopt appropriate decisions in accordance with the bank's regulations. It will also consider any request of the Bulgarian government for participation in programmes or campaigns in Kozloduy aimed at bringing the plant in line with international safety requirements and at improving radioactive waste processing.

Repairs on 6th Reactor

AU2909200491 Sofia BTA in English 0113 GMT
28 Sep 91

[Text] Sofia, September 27 (BTA)—Tonight Generating Unit 6 of the Kozloduy Nuclear Power Plant was plugged out of the country's energy grid. According to Mr. Kiril Nikolov, chairman of the Nuclear Power Engineering Economic Association, said that the plant was stopped due to technical considerations and that this was the usual practice in operating new power units. Unit 6 has reached a regime of stability operating at 50 percent of its capacity.

A team of experts will remove some technical defects in the 1000-megawatt turbine established in its thermal regulation and its steam and water supply. The unit will probably be put into operation by October 10.

YUGOSLAVIA

BORBA Questions Croatian Ability To Build Bomb

LD0410133791 Belgrade TANJUG in English
1214 GMT 10 Oct 91

[Text] Belgrade, Oct 4 (TANJUG)—The Belgrade daily BORBA writes today that 'the nuclear physicists and chemists of the Boris Kidric Institute in Vinca near Belgrade are divided on whether the Yugoslav Republic of Croatia is capable of building an atom bomb'.

The paper quotes Doctor Tomislav Tasovac as saying that 'it is absolutely impossible'.

On the other hand, Doctor Marko Ninkovic believes that it is technically feasible, that the preconditions exist and that (Croatia) has the necessary experts and equipment, says BORBA.

However, 'the materials are controlled by the International Atomic Energy Agency...and any attempt to build the bomb would be illegal', Doctor Ninkovic adds.

The Yugoslav Army magazine NARODNA ARMIJA says in its latest issue that the Rudjer Boskovic Institute in Zagreb has been commissioned by the Republican Interior Ministry to work, together with South Africa, on preparations for the production of small power nuclear missiles which would be used against the Yugoslav Army and Serbs.

'The Army probably knows the kind of infrastructure and personnel necessary for the production of nuclear weapons', says BORBA.

'It should also be asked if there is a connection between the South African plane which recently landed at an airport in the Yugoslav Republic of Slovenia and the story about building an atom bomb', the paper adds.

BORBA recalls that 'not a single Yugoslav state institution has denied a story published in the German weekly DER SPIEGEL in 1988, which accused Yugoslavia of working on the production of a nuclear bomb for Libyan leader Mu'ammar al-Qadhafi'.

DER SPIEGEL said the research was being conducted at the Rudjer Boskovic Institute in Zagreb.

Susak Says Chemical Weapons Used at Sibenik

LD2109170891 Zagreb Radio Croatia Network
in Serbo-Croatian 1500 GMT 21 Sep 91

[Excerpt] A few minutes ago a news conference ended whose main guest was [Croatian] Defense Minister Gojko Susak. He stated that the Government of the Republic of Croatia has sent a letter to Federal Defense Minister General Kadjevic, stressing that Croatia is ready to lift the blockade of the barracks and to provide water and electricity to the barracks if units of the Yugoslav Army withdraw to their barracks.

One of the questions was whether the enemy has chemical weapons, and whether it has used them. Yes, said Minister Susak, it has them and has used them in Sibenik, but we have still not completely established this. [passage omitted]

Factory Director Denies Making Chemical Weapons

AU3009211091 Belgrade Radio Belgrade Network
in Serbo-Croatian 1430 GMT 30 Sep 91

[Interview with Cedomir Markovic, director general of the Miloje Zakic factory, by Dragan Caran, reporter for Belgrade Radio program "Magazine 439," on 30 September—recorded]

[Text] During his stay in Washington last weekend, SFRY Presidency President Stipe Mesic accused the Yugoslav Peoples' Army [YPA] of using chemical weapons on civilians in Croatia. In a document entitled, The YPA and Its Involvement in Chemical Armament, Stipe Mesic directly accused the Miloje Zakic factory in Krusevac of manufacturing chemical weapons. Here is what Cedomir Markovic, the factory's director general, stated to our reporter Dragan Caran during the Magazine 439 [program] this morning:

[Markovic] I can tell you that I have been working for the Miloje Zakic factory for the last 25 years. I have been the director general of this factory for 13 years, and I can officially state that, since 1945, the factory has neither produced nor is it producing chemical weapons, and it is not equipped for such production.

[Caran] You do, however, produce some equipment for the Yugoslav Peoples' Army?

[Markovic] The factory is equipped and produces equipment not only for the YPA but also for the general public. Our equipment is meant to protect against chemical weapons, for instance: gas masks that protect respiratory organs from chemical weapons and other gasses, gloves, protective clothing, and so forth. We are a well-known manufacturer in Yugoslavia and worldwide, and we enjoy a certain reputation. Therefore, what Mr. Mesic said represents a gross misinterpretation of facts. It is a great insult for the company. Presenting such incorrect facts [affects further successful work of the factory].

BRAZIL

New Technology Has Nuclear, Aerospace Application

92WP0005B *Sao Paulo GAZETA MERCANTIL*
in Portuguese 26 Sep 91 p 23

[Article by Sao Paulo correspondent Costabile Nicoletta]

[Text] Nuclemon Mining and Chemicals, Ltd., a maker of rare earth compounds obtained by treating monazitic sands, has made an economic feasibility study of a new factory to make rare earth oxides of a high degree of purity and high aggregate value. The project is expected to cost \$30 million.

According to Luiz Fernando Teixeira de Macedo, director-superintendent of Nuclemon, the technology to be employed in that project was developed by experts at the Institute for Nuclear and Energy Research (IPEN) and the Nuclear Engineering Institute (IEN), both of which are controlled by the National Commission for Nuclear Energy (CNEN)—as is Nuclemon itself—through the holding company Industrias Nucleares do Brasil S.A., formerly known as Nuclebras.

The rare earths, explains Simon Rosenthal, Nuclemon's director of manufacturing, are compounds of 15 chemical elements from the lanthanides family, plus yttrium. For 50 years, Nuclemon has been making rare-earth chloride, a raw material in metallic alloys used in cigarette lighter flints.

These chemical elements are found in mineral deposits such as the monazitic sands that Nuclemon mines and processes at sites along the coast of Rio de Janeiro, Espírito Santo, and Bahia States. As technological progress is made, ways are being found to use these chemical elements separately in the form of extremely pure oxides.

One of those elements, europium, which is associated with yttrium, is used like phosphorous in color television sets. By combining samarium with neodymium, two other rare earths, miniaturized super-magnets for engines can be made. The range of applications is vast and includes everything from the nuclear industry to the aerospace industry, plus others of similar sophistication.

Nuclemon had signed an agreement in 1988 with a Japanese firm, Santoku Minerals, for transfer of the technology needed to separate chlorides from both light and heavy rare earths at the company's plant in the Interlagos neighborhood of the city of São Paulo. The agreement called for an investment of \$2 million.

Under the accord, Nuclemon had to guarantee Santoku that it would supply heavy rare earth chlorides, which the Japanese firm uses as raw material in the production of very pure alloys. Those heavy chlorides cost about

\$7,800 per ton. "By separating the rare earths, we would be able to charge a price at least three times higher," Teixeira de Macedo said.

In order to get the Nuclemon project off the drawing board, the company is considering a entering into partnership with private companies. Thirty percent of the investment funds would come from the state enterprise, 30 percent from the new partner, and the remaining 40 percent would be financed by the National Bank for Economic and Social Development (BNDES) or other institutions.

Once the project is implemented, it would be 36 months before production could begin. Nuclemon intends to move its facility away from Interlagos in order to expand it; what happens is that the industrial waste from the production process is radioactive and requires special storage facilities. The issue has already led to a battle with environmentalists and the São Paulo public prosecutor.

Nuclemon's process generates two kinds of waste. One is known as mesothorium cake, for which no economic use has yet been developed and which needs to be properly stored. Every 120 tons a month of monazite that Nuclemon processes yields five tons of leftover mesothorium cake.

Another 48 tons a month of waste, called cake II—which contains uranium and thorium—become the raw material for Urânia do Brasil, another company that was once part of the former Nuclebras but has not yet been authorized by the CNEN to process it.

Under the process that Nuclemon wants to use at the new manufacturing plant, the cake II waste would be treated and exploited commercially, yielding about 2.5 tons of uranium and 100 tons of thorium a year. If the cake II waste can be utilized, Nuclemon might have the option to continue operating at Interlagos.

Annual sales from the factory have been projected at \$26 million. According to Teixeira de Macedo, some preliminary understandings have been reached between the state enterprise and major corporate groups such as Rhodia, Paranapanema, the Belgian Solvay group, and with Santoku itself, leading to the formation of a new company that would pick up this project.

Use of Secret Funds for Nuclear Program Confirmed

91SM0502D *Sao Paulo GAZETA MERCANTIL*
in Portuguese 4 Sep 91 p 10

[Text] Secretary of Strategic Affairs [SAE] Pedro Paulo Leoni Ramos confirmed yesterday to the National Defense Committee that secret appropriations in the amount of 3.8 billion cruzeiros had been spent on nuclear energy, out of a total of 12.5 billion cruzeiros allocated to that field under the secretariat's budget. However, Leoni did not explain to the deputies where

LATIN AMERICA

and how the money was used. Agencia Globo reported that he claimed he is forbidden to do so by the Constitution and a body of laws that, according to Leoni, are vital to national security.

"I can confirm the use of secret funds, but the legal precepts that currently govern this secretariat prevent me from going into detail," Leoni told Sao Paulo Deputy Jose Dirceu (PT) [Workers Party], who had formulated the request calling on Leoni to explain the secret use of budgeted funds.

The secretary backed the suggestion that the National Defense Committee begin to monitor the use of secret funding by the government, while maintaining confidentiality. According to Agencia Brasil, he stated that "It is public knowledge that the Secretariat of Strategic Affairs sincerely wants the national Congress to monitor SAE activities, objectively and systematically, especially those that represent intelligence work and the use of secret funds."

Leoni also said—according to Agencia Globo—that as of August of this year, 0.45 [as published] percent of the secretariat's budget had been spent on secret funding in the intelligence area.

During nearly two hours of testimony before the committee, Leoni stressed that the use of secret appropriations is perfectly legal. The meeting was 45 minutes late in starting, due to absence of a quorum.

Speaking to a plenary session of fewer than ten legislators, the secretary gave a formal report of the budget expenditures by the SAE without giving very many details, but took advantage of the opportunity to denounce, according to reporter Adriana Vasconcelos, "the scurrilous and ill-considered accusations, so sadly disseminated on this subject by those who stubbornly persist in maligning authority."

Pedro Paulo Leoni Ramos stated, according to Agencia Brasil, that during the period 14 March to 31 December 1990, "the review of accounts performed by the Secretariat for Internal Control of the Office of the President concluded that the outlays were in order. This led to their approval by the secretary of strategic affairs and the secretary of internal control, and subsequent forwarding to the federal Court of Auditors."

CNEN President Views Results of IAEA Conference

92WP0005A Sao Paulo GAZETA MERCANTIL
in Portuguese 26 Sep 91 pp 1, 20

[Article by Sao Paulo correspondent Luis Leonel]

[Text] The bilateral safeguards agreement signed by Brazil and Argentina two months ago in Guadalajara, Mexico permitting mutual verification of their nuclear facilities is encouraging countries that traditionally have stubbornly resisted any kind of inspection of their

nuclear facilities to agree to monitoring by the International Atomic Energy Agency (IAEA).

South Africa signed the international safeguard documents last week during the IAEA's 35th annual Conference. South Africa had been one of the countries that was viewed with mistrust by the international community for pursuing a nuclear program that was beyond the reach of any kind of control and, in theory, capable of producing nuclear warfare devices.

North and South Korea and the Middle Eastern nations, also firmly opposed to any monitoring of their nuclear plants until recently, are now discussing whether or not to accept the IAEA safeguards. "By their willingness to open their installations to international controls (Brazil and Argentina are to sign international safeguards agreements in the next few months), the two countries have pointed others in the same direction," said Jose Luiz Santana de Carvalho, president of the National Commission for Nuclear Energy (CNEN), who presided over the IAEA conference this year.

Brazil and Argentina were considered as paradigms of countries that conducted nuclear programs with a view to strengthening their position on the regional scene. Military men in the two countries—traditional rivals in the economic and military fields—were accustomed to keeping their eyes on their neighbor and reporting every step taken, in order to demand funds from their own governments for covert investment in the nuclear area under the allegation of a need for "strategic security."

South Africa, isolated on the black African continent, resorted to the same sort of argument. Likewise, the instability of the Middle East made that argument readily acceptable to the governments of Israel and the Arab countries. South Korea also competed with its neighbor to the north in boosting investments in the nuclear area and in keeping secret what it was doing.

The suspicion hanging over all those countries was that they were pursuing nuclear programs that had a military objective.

"By signing the IAEA safeguards conditions, they have dispelled that suspicion," Santana said. Brazil, along with Argentina, was supposed to have signed the international agency's safeguards papers during the 35th Conference. "We were ready to sign, but members of the agency were still studying the model version we were going to use," Santana explained. Brazil and Argentina, unlike other signatories to IAEA safeguards, are submitting their facilities to inspection but keeping their technological, industrial, and commercial secrets intact. Santana gave assurances that signature of the IAEA international safeguards by the two countries should occur before the end of the year.

Inspectors from the agency will monitor the nuclear materials processed by Brazil and their fuel cycle, but not inspect the machinery and equipment that perform that operation. It is as if they will examine the raw uranium

that enters Brazilian facilities and later, look at the enriched uranium that leaves them. From the degree of enrichment and the quality of the material produced, they can determine whether Brazil is capable of making, or is making, devices for warfare. Brazil enriches uranium to 20 percent at the Aramar center in Ipero, Sao Paulo State, which belongs to the Navy. Uranium has to be enriched to 90 percent to make a nuclear bomb.

This type of safeguard creates a demilitarized zone in South America in terms of nuclear weapons. Signing of a similar commitment by South Africa (without restrictions, since there the controls also cover technological, industrial, and commercial aspects) creates a peace zone in Africa. The next step is to create demilitarized zones in the Middle East and on the Korean peninsula.

The nations of the Middle East—except Iraq—will also adopt a special safeguards model. IAEA members are debating what that model will be like. The two Koreas are discussing the terms of their respective safeguards under the IAEA aegis. "In less than a year, regions that have been refusing for more than 30 years to sign the agency safeguards are demilitarizing themselves," said Santana. "This is an historic conference."

Of the countries that traditionally have been reluctant to agree to the IAEA safeguards, only India and Pakistan are still resisting the idea. "These are the called balls," Santana said in a reference to pool, where the called ball is the next one to fall into the pocket. According to him, neither of the two countries are yet talking about signing the energy use commitment that would place their nuclear facilities under international control but, "international pressure will soon force them into it."

The 80 members of the Conference passed a motion condemning Iraq for developing and using nuclear weapons. They demanded that Iraq submit both its official and parallel facilities to international controls. Another important decision by the conference was to admit the Baltic countries (Latvia, Lithuania, and Estonia) as permanent members of the IAEA.

Brazil was selected to preside over the 35th Conference (held in Vienna, Austria, from 16-20 September) because of the importance in the demilitarization process of the commitments signed jointly with Argentina. "All the delegates stressed the importance of the Brazil/Argentina accords in reducing regional tensions," the CNEN president explained.

Negotiations between Brazil and Argentina in the nuclear field began during ex-President Jose Sarney's administration, when he visited Argentina and toured its nuclear plant at Embalse, in Cordoba Province, accompanied by then-President of Argentina Raul Alfonsin. Soon afterward, Alfonsin came to Brazil to see its nuclear facilities. Secrets that both countries had always kept under lock and key were beginning to come to light.

On 28 November 1990, President Fernando Collor signed a document that established a nuclear book-keeping system between the two countries. Three months later France, and then China, expressed intentions to sign the Treaty on the Nonproliferation of Nuclear Weapons.

Progress Seen in Radioisotope Production

92WP0001B *Sao Paulo GAZETA MERCANTIL*
in Portuguese 18 Sep 91 p 15

[Article by Luis Leonel]

[Text] Atibaia—The Institute for Nuclear and Energy Research (IPEN) is putting the final touches on what it calls the "molybdenum project," which calls for producing that material at the IPEN's facilities within two years. This means that within that time, the country will be able to stop importing molybdenum-based radioisotopes because the raw material will be produced domestically, according to what this newspaper was told by the superintendent of the IPEN, Spero Penha Morato, who participated yesterday in the opening of the Eighth National Meeting on Reactor Physics and Thermohydraulics in Atibaia.

He believes that investments to develop the project will be on the order of \$5 million. "We are determining the means of providing those funds," he said. According to him, the decision has now been made to increase the power of the IPEN nuclear reactor from two to five megawatts (MW) and to operate it continuously for five days a week rather than only eight hours a day, as is now the case.

Production of the nuclear fuel for operating the nuclear reactor has been underway since last year at the Copesp [Special Projects Coordinating Board] center in Aramar. Increasing the reactor's capacity will cost about \$1 million, and the remaining \$4 million will be used to improve the laboratories and set up molybdenum processing cells—in which the material can be manipulated by an operator working outside those cells and using robotics and teleprocessing methods.

Brazil currently spends about \$1 million to import radioisotopes, which are then processed at the IPEN and used by hospitals to detect various cancers and tumors. In the first few months of this year, the president of the National Energy Commission, Jose Luiz Santana, announced the government's intention to turn the importing and marketing of radioisotopes over to private enterprise.

About two weeks ago, however, he admitted that the agency was encountering pressure in opposition to that privatization, chiefly from medical sectors, which want to keep the importing and marketing of those radioisotopes in the hands of government enterprises, since they fear a possible price increase and the possibility that their medical use will be restricted to those who can afford it. Despite that, he guaranteed that privatization

would be carried out, although he confirmed that the Medical Center of Sao Paulo University (USP) would be involved in the process.

"We are not opposed to privatization; we feel that it must happen, but within two years or a little more we may be producing the material domestically," said Moraes.

The radioisotopes imported by Brazil come mainly from Canada and Belgium. Argentina also has the ability to produce them, but it does not sell any to Brazil.

ABEN Terms IAEA Safeguards Discriminatory

92WP0001C Sao Paulo *GAZETA MERCANTIL*
in Portuguese 19 Sep 91 p 17

[Article by Luis Leonel]

[Excerpt] Atibaia—[passage omitted] The editorial in the latest issue of the publication of the Brazilian Nuclear Energy Association (ABEN) says that "at the moment when we are completely mastering nuclear fuel cycle technology, which we have managed to do autonomously (because there was no other way, seeing that that technology was denied us by the central countries), and at the moment when we are close to operating a small reactor, entirely domestic and built to the most modern technological standards, for the generation of electricity and ship propulsion—at that very moment, we are placing ourselves in a submissive position by yielding to international pressure to make the (Navy's) Autonomous Program subject to the safeguards set by the IAEA [International Atomic Energy Agency]."

Further on, the editorial in the ABEN's newspaper says that "we must say no to the IAEA's safeguards because they are discriminatory and serve the purposes of a hegemonic plan that is likely to grow only stronger with the 'new world order.'"

Angra I Fuel Reprocessing for Embalse Studied

92SM0001Z Sao Paulo *GAZETA MERCANTIL*
in Portuguese 20 Sep 91 pp 1, 21

[Article by Luis Leonel]

[Text] Atibaia—The nuclear fuel removed from the Angra I power plant at the conclusion of its life cycle may be reprocessed for use in the Argentine plant at Embalse in Cordoba Province. A technical and economic study of the feasibility of such reuse is beginning to be sketched out by the Permanent Argentine-Brazilian Committee on Nuclear Policy.

Gilberto Gomes de Andrade, head of the Reactor Department at the Institute for Nuclear and Energy Research (IPEN), explained to this newspaper: "It will be a kind of simplified reprocessing. We will not need to separate the plutonium from the uranium; we are going to leave the two elements mixed together."

However, the concept of reprocessing nuclear fuel is always linked to the idea of separating plutonium from uranium, at least when that technology is employed in its broadest sense. The isolated plutonium can be used to produce new nuclear fuels, mixed with natural uranium (as is currently done in countries such as France and Japan), or used to produce military devices.

"We realize that whenever there is talk of reprocessing nuclear fuel, there is a concern over the possibility that an atomic bomb will be produced, but that would only be possible if there were complete reprocessing," Andrade said. "What we are going to engage in is simplified reprocessing," he repeated.

According to the manager of the research and development section of Argentina's National Atomic Energy Commission, Maximo Julio Abbate, the pellets of enriched uranium that are welded to the nuclear fuel rods at Angra I will have to be removed so they can be mounted on new rods. This represents a kind of reprocessing, although a simplified kind. It is necessary owing to the difference in size between the rods used at the Brazilian and Argentine plants. Angra I (626 megawatts) has rods 4 meters long, while those at Embalse (600 megawatts) are 60 centimeters long. Atucha I (300 megawatts), located in Buenos Aires Province, may also be able, in a second stage, to accept reprocessed nuclear fuel wastes from Angra I.

The Brazilian and Argentine plants are of different types. The Brazilian plant uses a pressurized water reactor (PWR), while the Embalse and Atucha I plants in Argentina are of the heavy water reactor (HWR) type. The fuel for the Brazilian plant is uranium enriched to 3.2 percent, while that for the Argentine plants is natural uranium or uranium that has been slightly enriched (to 0.7 percent).

It is that difference which makes it possible for the fuel to be reused. By the end of its life cycle (18 months on average), the fuel at Angra I has dropped to an enrichment level of 1.2 percent. That is not high enough to operate a pressurized water reactor, but it is excellent for a heavy water reactor of the type used at the Argentine plants. The concept of reusing fuel in that way is known as the "tandem cycle"—meaning supplementary use.

No country has adopted that kind of reuse today. According to Abbate, the decision to undertake the study on behalf of Embalse is due to theorizing initiated by Canada—the country that designed the plant for Argentina—with a view to adopting that kind of reuse. "But it seems that they did not continue with the idea," he said. "There is no experience with that kind of use in other countries, so the only way to make progress is to clear the path."

The study that will be carried out by the Argentine-Brazilian committee will have to answer a number of questions. Will fuel from one plant really work in the other plant? How will the pellets be separated from the rod, and how will they then be mounted on other rods of

different sizes? Is it economically feasible? "We are still at a very preliminary stage of the study," the Argentine expert explained.

Theoretically, the Embalse plant's use of fuel consisting of uranium enriched to 1.2 percent—the plant operates satisfactorily with fuel enriched to 0.7 percent—would increase its efficiency. "But this has not been proven; we will have to study the matter and determine what it will cost," Abbate said.

In Brazil, reuse might solve a problem with the storage of waste from Angra 1. That waste is currently stored in a pool that can accommodate 363 fuel elements, although there are plans to increase the capacity to 1,100 elements. Moreover, according to Abbate, storing those elements after their reuse in Argentine plants would be simpler and less hazardous, since the enrichment level of the uranium would drop from 1.2 percent to 0.2 percent, that being the level in the waste from the Argentine HWR plants.

Angra I To Resume Operation in October

92WP0001A Sao Paulo GAZETA MERCANTIL
in Portuguese 19 Sep 91 p 17

[Article by Luis Leonel]

[Text] Atibaia—The Angra I nuclear power plant located in the Rio de Janeiro municipality of the same name is to resume operation at the start of next month. Angra I's operation was interrupted on 1 August to permit fuel reloading.

This is the third time the plant has replaced its nuclear fuel, which consists of 121 elements supplied originally by Westinghouse. Since 40 elements, or one-third of the total, are replaced each time, only one of the elements produced by Westinghouse, the firm that built the Angra I reactor, is still in the plant. That last element will be replaced during the next reload, 18 months from now.

The fuel element is a rod about 4 meters long to which pellets of enriched uranium are welded. It is those rods which begin reaction within the reactor and generate the heat necessary for producing electricity. Ever since the first reload, enrichment of the uranium pellets has been done by a consortium of German, Dutch, and British firms called Urenco [Uranium Enrichment Consortium], while the welding of the pellets to the rods and their assembly in the reactor has been done by Nuclear Industries of Brazil (INB). The cost of each fuel reload at Angra I is about \$25 million, according to the assistant to the management of the Angra nuclear area, Ronald Araujo da Silva.

Angra I's management expects that during its upcoming 18-month cycle of operations—until the next reload—the plant will perform as well as it did in the previous 18-month cycle.

According to Araujo da Silva, Angra I operated during the previous cycle with an availability factor on the order of 92 or 93 percent. This means that between 92 and 93 percent of the time, the plant was in condition to be used at its maximum capacity, which is 626 megawatts of power. In practice, the plant was utilized at an average of 50 percent of its capacity during that period, although it was capable of operating at 100 percent nearly all the time.

However, it operated at 100 percent only when Itaipu was on strike, thus preventing an interruption in supplies to the integrated South-Southeast system, Araujo da Silva explained.

"Angra I's performance can be compared today to that of the five best nuclear power plants in the world," he said. He admits that it is difficult to erase the image of the plant as being shut down so often that it has come to be known by the nickname "firefly."

To improve its performance, Angra I had to invest in the purchase of duplicates of a number of pumps and other items of equipment so they would be available to replace the defective originals in an emergency, thus avoiding a shutdown. The number of oil generators rose from two to four so as to be able to provide electricity to the plant in case of a voltage drop in the network—Angra I is supplied by five high-voltage lines, two at 378 kilovolts (kV) and three at 500 kV.

Use of Computers

In addition, the condenser tubes, whose function it is to cool the steam so it will return to the liquid state, are now made of titanium, a much stronger element than the alloy which was used before and which was in the habit of springing leaks, thus making it necessary to shut the plant down. A computer system is now used to supervise the operation of the plant. It detects malfunctions in sufficient time for them to be corrected before they become serious problems.

Since 1985, when it began commercial operation, the Angra I plant has generated 12.6 million megawatt-hours. Currently, it is calculated that 20 percent of the energy consumed by Rio de Janeiro is generated at that plant.

CUBA

Right To Develop Nuclear Program Reaffirmed

PA2509192891 Havana Radio Havana Cuba in Spanish
1400 GMT 24 Sep 91

[Commentary by Roberto Morejon]

[Excerpt] The 25th general conference of the International Atomic Energy Commission, which ended recently in Vienna, Austria, served as a platform for Cuba to reaffirm its right to develop a nuclear program with peaceful ends. It is timely to insist that Cuban

sovereignty on nuclear matters be respected, in view of the periodic campaigns waged by the United States against Cuba, consisting of presenting as dangerous the construction of an electronuclear plant in the Caribbean nation.

The U.S. maneuvers, based on fallacies and distortions, seek to prevent the construction of the first Cuban electronuclear plant on the southern central part of the island in the area known as Juragua. Construction of that project, the center of national nuclear activity, continues despite Cuba's known economic limitations and the situation caused in the wake of difficulties that have emerged in trade with the Soviet Union.

The Cuban electronuclear plant has modern and safe Soviet technology, different from that of Chernobyl. Currently over 90 percent of construction on the project's first phase is complete. All construction is scheduled to be completed by the first half of 1992. The plant will be installed and equipped later that year, with strict state control and supervision in accordance with international standards. This will obviate any danger to Cuba and its neighbors in the event of natural disasters or accidents. [passage omitted]

CEA Delegation Tours Iranian Nuclear Plant

*FL2609120891 Havana Tele Rebelde Network
in Spanish 1100 GMT 26 Sep 91*

[Text] The Cuban Atomic Energy Commission [CEA] delegation headed by Fidel Castro Diaz-Balart which is visiting Iran has visited the areas of the (Buche) nuclear power plant in Iran. During their stay in Iran, the Cuban experts have familiarized themselves with the progress of the construction and assembly work on the two units with pressurized water reactors that can produce 1,300 megawatts of electricity each.

The Cuban delegation had previously held working meetings in Tehran at the Nuclear Research Center and the Department of Radiological Protection of the Iranian Nuclear Agency. CEA Executive Secretary Castro Diaz-Balart had previously met with Iranian President 'Ali Akbar Hashemi-Rafsanjani at the Government Palace.

Joint Iranian Nuclear Research Agreement

*WA2310112691 MOSCOW RABOCHAYA TRIBUNA
in Russian 2 Oct 91 p 2*

[By Sergey Kutikov]

[Text] FLASH!

And Cuba Is In Pursuit

The National Information Agency of Cuba (AIN) reported that Cuba and Iran have concluded an agreement on nuclear research cooperation. The communique circulated here notes that a delegation of the Cuban Atomic Energy Commission, which completed its visit to Iran, signed an agreement with this country on "a program of cooperation between various scientific centers."

Nuclear Cooperation Accord With Iran Signed

*FL0110134891 Havana Tele Rebelde Network
in Spanish 1000 GMT 1 Oct 91*

[Text] The delegation of the Cuban Atomic Energy Commission [CEA] has ended its visit to the Islamic Republic of Iran with the signing of a cooperation program among various scientific institutions in the two countries for the 1992-1993 period. The accord marks the beginning of closer cooperation between the two countries. The accord was signed by CEA Secretary Fidel Castro Diaz-Balart and Reza Amrollahi, the president of the Iranian Atomic Energy Organization.

NICARAGUA

Colombian General Investigates Missile Shipment

*PA2609223091 Panama City ACAN in Spanish
0035 GMT 26 Sep 91*

[Excerpts] Managua, 25 Sep (ACAN-EFE)—On 25 September Colombian General Manuel Bonett Locarno, intelligence chief (information and security) of the Colombian Army, talked to Nicaraguan military commanders regarding the theft of missiles from the Nicaraguan Armed Forces arsenals, allegedly to be sold to Colombian guerrillas.

Gen. Bonett is visiting the country amid great secrecy. The Sandinist People Army (EPS) General Command and the Colombian Embassy in Managua did not comment on the results of Gen. Bonett's meetings with Nicaraguan military commanders. [passage omitted]

A group of 10 Nicaraguans, most of them former EPS soldiers, stole 16 "SAM-7" and four "SA-14" missiles, with 10 launchers for both types of surface-to-air missiles with their respective loading devices from an EPS depot.

They also stole 639 82-mm mortars, and 39 RPG-7 rocket launchers.

They planned to sell both weapons shipments for \$900,000 "to the best buyer," who could be Salvadoran, Guatemalan, or Colombian guerrillas, or drug traffickers.

ALGERIA

IAEA Grants Assistance for Nuclear Projects

LD2609180991 *Algiers APS in English 1012 GMT 26 Sep 91*

[Text] Algiers, 26 Sep (APS)—The International Agency of Atomic Energy (IAEA) granted to Algeria an assistance of \$506,800 for the programme of technical assistance and cooperation for 1992. Funds will serve the financing of projects linked to the enforcement of nuclear techniques. The accord was concluded in connection with the works of the 35th session of the International Conference of Atomic Energy which took place in Vienna. During this conference Algeria was elected to the IAAE Council of Governors.

On this occasion, the minister delegate to research, technology and environment, Hadj Sleiman Chrif, stressed that "Algeria considered that it is important to carry on the task of the consolidation of national technological and scientific bases in order to reach a large use of nuclear techniques in medicine, agriculture, hydraulics, industry, energy, and research."

Examining the progress achieved by Algeria in that field, the minister recalled that the reactor of research which is being built in the frame of cooperation with China will enable to meet on the one hand, the national demand in radioisotopes and in radiopharmaceutics, and on the other hand, different needs in the field of research.

Algeria decided "in a voluntary way to submit the 'Salam' reactor to guarantees of the IAEA and officially informed the head of the agency a few months ago," the minister indicated, before adding that "Algeria envisages in a unilateral way and in whole sovereignty to start with the IAEA negotiations for the conclusion of an accord of guarantees."

EGYPT

Inspection of Israeli Nuclear Facilities Demanded

NC2309154191 *Cairo MENA in Arabic 1341 GMT 23 Sep 91*

[Text] Cairo, 23 Sep (MENA)—The newspaper AL-AHRAM AL-MASA'I reports today that Egypt is holding international, regional, and Arab contacts to seek an international inspection of the Israeli nuclear reactor. Egypt has officially notified the United States, the Soviet Union, Britain, France, and China—in their capacity as the Security Council's five permanent members—of its position calling for an international inspection of the Israeli nuclear reactor. Egypt told these states of the need to inspect Israel's nuclear capabilities, programs, plans, and reactors before establishing any international arrangements for the elimination of weapons of mass destruction and for conventional arms control in

the Middle East, in accordance with President Mubarak's initiative which seeks to free the region of these destructive weapons.

The paper adds that, in its contacts with these five states, Egypt stressed a number of principles and priorities that must be adopted before making any arrangements to eliminate the weapons of mass destruction and institute conventional arms control in the Middle East on the basis of equality and justice among all the region's countries.

The paper notes that these principles include the need to submit the Israeli nuclear programs and activities to international inspection and the need for Israel to sign the agreement banning nuclear proliferation, in accordance with the guarantees established by the Vienna-based Atomic Energy Agency. These principles also include the need to define each country's defense requirements according to its needs and to clearly specify the type of verification procedures to be followed and the necessity of distinguishing between a country which exports weapons and one that participates in developing local weapons.

These principles and priorities also stressed each country's right to obtain the weapons it needs to maintain full deterrence so that these arrangements do not favor of one country in the region at the expense of the others and to ensure that the disarmament process is related to the Arab-Israeli peace process. Under these principles, the proposed arrangements must deal with weapons production before they address stockpiles, and the international community must be committed to applying the procedures that are adopted and to establish a mechanism to verify their implementation.

AL-AHRAM AL-MASA'I adds that senior officials from the Egyptian Foreign Ministry and the U.S. State Department will meet next month in Cairo to continue the discussion on Egypt's position on regional disarmament and arms limitation.

INDIA

Nuclear Understanding With Pakistan Urged

92WP007A *Bombay THE TIMES OF INDIA in English 7 Sep 91 p 12*

[Text] As the defence debate in the Lok Sabha brought out, there is widespread concern among members about the impact of the momentous developments in the Soviet Union on our armed forces because of our heavy dependence on hardware from this source. Mr Sharad Pawar was wise to refrain from repeating the bland assurances offered by his junior minister, Mr Krishna Kumar, (based on soundings taken well before the abortive coup and the consequent sea-change in the Soviet political structure) and implicitly promised a fresh assessment after a visit that he soon plans to make to Moscow. It is this context which gives added significance

to his disclosure that India is exploring the possibility of expanded cooperation with the US in the defence field, and that the just concluded visit of the army chief was part of this effort. Quite clearly, it will be, as BJP's Mr Jaswant Singh said, a profound error to base our policies on "yesterday's cliches". In drawing up plans for the future, there is certainly a need to take a holistic, long-term view of the changes in our security and the quantum of available resources. Mr V.P. Singh's plea for a 15-year planning horizon makes eminent sense because any changes in force structures have to be planned for and spread over years. At present five-year plans are indeed drawn up, but these are little more than an agglomeration of the blueprints drawn up by individual services. In the absence of a political assessment of security threats, the entire planning process is reduced to a mechanistic ritual. While the national security council set up by Mr V.P. Singh was a misnomer—it amounted to nothing more than a defence committee of the cabinet—there is no gainsaying the need for an agency to do the staff work required to define available options, taking an integrated view of military as well as non-military factors relevant to an overall security policy.

Nuclear capability will, of course, figure prominently in this exercise. The Lok Sabha heard, as it does every year, pleas from several individual members to opt for the bomb, wholly ignoring that non-proliferation is now at the top of the international agenda. Mr Pawar is quite right that India cannot subscribe to the iniquitous non-proliferation treaty, which cannot in any case take care of concerns stemming from the bombs suspected to be stored in basements or from clandestine facilities. A way out can, however, be found, as Mr V.P. Singh suggested, by coming to an understanding with Pakistan regarding non-use of nuclear capabilities, a confidence building measure which other relevant powers can be persuaded to endorse.

Solanki on Pakistani Nuclear Program

BK2809091891 Delhi All India Radio Network
in English 0830 GMT 28 Sep 91

[Text] The external affairs minister, Mr. Madhavsinh Solanki, has said the United States favors bilateral solution of the Kashmir issue by India and Pakistan on the basis of the Simla agreement. He told an American TV network that he has received confirmation of the American position on the issue from both direct and indirect sources.

Referring to Pakistan's clandestine nuclear program, Mr. Solanki reiterated India's position that it believes in utilizing nuclear energy for peaceful purposes. He said New Delhi monitors all developments having a bearing on India's security. Asked whether India will sign the Nuclear Nonproliferation Treaty, Mr. Solanki said it is discriminatory and not the best instrument to prevent proliferation.

Plans for Use of Thorium Reactors Announced

92WP0010A New Delhi PATRIOT in English 5 Sep 91
p 2

[Text] The Bhabha Atomic Research Center (BARC) has announced plans to start large scale work on the third phase of the atomic energy programme where thorium instead of uranium will be used to fuel the reactors, reports PTI.

As part of the scheme as much as 600 kg of thorium will be loaded into the core of the second unit of Narora Atomic Station which is expected to go critical soon.

This is the first large-scale introduction of thorium into power reactors.

Addition of thorium would "become a regular feature in future reactors, every reactor being initiated with a few hundred kilograms of thorium", BARC said.

BARC is also working on a scheme to introduce thorium along with uranium-plutonium mixed oxide into one of the operating pressured heavy water reactors (PHWR).

"Although the date is not yet certain this might come through in a year or two", BARC said.

According to BARC, these are the two immediate proposals for thorium utilization without affecting the ongoing power programme.

BARC is speeding up work on thorium because the energy potential of thorium in thermal reactors "is way above that of natural uranium" presently used to fuel the PHWRs.

India has five times more thorium than uranium, and the energy content in thorium reserves is about 400 times the energy that can be generated from uranium, BARC said.

The first phase (PHWR) of the nuclear programme has reached commercial stage, the second phase of fast breeder reactor has progressed to the design of a prototype, and "we are now proposing to start large-scale work on thorium phase".

Thorium is processed from beach sands of Kerala, Tamil Nadu and Andhra Pradesh. Indian thorium is considered to be of high grade.

Thorium by itself is not a nuclear fuel but it turns into uranium-233—an excellent nuclear fuel—when bombarded by neutrons inside a reactor. The U-233 is chemically separated from irradiated thorium.

BARC made a beginning 40 years ago when it introduced thorium rods in the Canadian built Cirus reactor and then chemically processed it to separate U-233.

Subsequently the scale of fabricating thorium rods was increased and tons of thorium were produced. For the first time 50 kg of thorium was introduced in the Madras power reactor in 1985.

The second unit of Narora station is the first power reactor where 600 kg of thorium will be introduced to produce sizable U-233 for the third phase of the atomic programme.

BARC has already designed two small reactors exclusively fuelled by U-233 and extensive studies have been carried out for the preparation of a mixed oxide fuel using thorium and U-233.

"Now we expect to enlarge our scale of operations on thorium since capability on a small scale has already been demonstrated", said Dr Kamla Balakrishnan of the reactor engineering division at BARC.

She said the long term strategy "is to return to thermal reactors for the third phase since thorium converted into U-233 will help keep the cycle going without sizable inputs of external fissile material".

BARC is considering several ways of using thorium in PHWRs. In one such method, only the first charge of U-233 will be provided externally. Thereafter, the reactor can operate on thorium alone.

In another method, the PHWR will be supported by U-233 fuel produced externally in what is called "fusion breeders". Working on the thorium cycle, a fusion breeder can support 50 or even 100 times its own capacity of installed electrical power, BARC said.

BARC said it is also working on an advanced heavy water reactor which retains the desirable features of PHWR but optimizes the system for thorium.

Developments in Nuclear Power, Fuel Reported

91WP00084 New Delhi PATRIOT in English
31 Aug 91 p 8

[Text] There has been further slippage in the schedule of the second unit of Narora atomic power project (NAPP-2) going critical. Although the DOE's [Department of Energy] annual report says that "the unit is expected to achieve criticality by August 1991", it is learnt that there has been a delay in this schedule by about six months, reports IPA.

A leading atomic scientist concerned with NAPP-2 told IPA that the earliest the second Narora unit is expected to go critical is during December this year, thought the likely timing for its criticality operations to commence was January 1992.

The DOE's annual report discloses that initial production of mixed oxide fuel (MOX) had commenced at Tarapur's Advanced Fuel Fabrication Facility. It is understood that the MOX fuel could replace the enriched uranium fuel being used at the Tarapur atomic power plant, if and when France discontinues the supplies.

French supply of enriched uranium for Tarapur reactors is expected to be available for another five years, till the

lifetime of TAPP as per contract with the GE-led American consortium which undertook turnkey construction of Tarapur reactors.

Another notable feat by scientists at BARC is development of mixed nitride fuel—a candidate fuel for the fast breeder test reactor at Kalpakkam in place of mixed carbide fuel in use presently. There have been some problems centering on the liquid sodium coolant used in FBTR reportedly accentuated by use of mixed carbide fuel. The new fuel is expected to mitigate these difficulties.

The DOE's annual report outlines a flurry of activity and all round advance by nuclear research institutions, power projects and nuclear industry during the year 1990-91.

Nuclear power generation by the operating stations during the calendar year 1990 was 6182 MUs, which was a 54 percent increase over power generation in 1989. Construction of as many as seven new atomic power projects of 2 x 235 MWe capacity each was in progress, while four units (reactors) of 500 MWe capacity had been cleared for construction at the Rajasthan site.

An outstanding achievement was commissioning during the year of the Spent Fuel Storage Facility and the successful operation of the Waste Immobilization Plant.

Other notable facilities commissioned during the year were Sewage Hygienization Research Irradiator at Baroda. Dredge & Wet Gravity Concentration Project at Chavra. Concentrate Upgrading Plant at Manavalakurichi and Heavy Rare Earth Oxide Plant at Udyogmandal.

The research and development sector witnessed Purnimal-III attaining criticality. CAT at Indore, identified as the center for the national laser programme, achieved development of various types of lasers such as copper vapor lasers, nitrogen lasers.

Hyderabad Complex Plans Nuclear Fuel Expansion

92WP00124 Bombay THE TIMES OF INDIA
in English 9 Sep 91 p 7

[Text] Hyderabad, Sept. 8 (PTI). An ambitious Rs 650 crore nuclear fuel expansion programme encompassing four new project to meet the country's scaled down 6,500 Mw nuclear power programme upto 2000 AD has been embarked upon by the nuclear fuel complex (NFC) here.

The project—660 tonnes uranium dioxide pellets per year, uranium fuel assembly plant, 80 tonnes zircaloy fabrication plant for fuel tubes and components all at the NFC and a 300 tonnes zirconium sponge plant at Palayakkal in Tamil Nadu—are slated for commissioning during 1994-95, NFC chief executive, Dr K. Balaramamoorthy, told newsmen here yesterday.

The project, geared to expand the facilities and capability of the NFC, have been cleared by the planning commission and await cabinet clearance, he said.

The NFC chief said that due to financial constraints, the nuclear power generation target of the department of atomic energy had been scaled down to 6,500 Mw from 10,000 Mw upto 2000 AD.

In its efforts to meet the fuel needs of various nuclear power stations in the country, the NFC had supplied 72,000 fabricated and fuel bundles, Dr Balaramamoorthy said.

In addition to the vital component of fuel pellets for the power plants, the NFC also supplies all the zircaloy and zirconium tubes for the Kalpakkam, Narora and Kakrapar plants.

Four Nuclear Power Station Supply Plants Planned

BK2709113191 Delhi PATRIOT in English 9 Sep 91 p 6

[Text] Hyderabad, Sept 8 (UNI)—The Nuclear Fuel Complex (NFC) here which supplies fuel and zirconium alloy requirements for the nuclear power stations in the country will set up four new plants at an estimated cost of Rs 650 crore during the eighth plan period.

NFC chief executive Balarama Moorthy told newsmen here today that the proposed projects which had already been cleared by the Planning Commission were expected to get Cabinet approval soon. Three of the new projects would be set up in the sprawling NFC complex.

The units to be set up at the NFC complex were: Uranium oxide fuel plant to produce 660 tonnes of uranium oxide pellets per year, uranium fuel assembly plant and zircaloy fabrication plant.

The fourth one to produce 300 tonnes of zirconium sponge per annum was being set up at Palayakayal in Tamil Nadu and the land for the plant had already been acquired.

He said the four units were being set up to achieve a capacity of 6050 MW of nuclear power by the turn of the century.

The initially designed capacities of various plants at the NFC were being progressively increased to meet the fuel and zirconium alloy requirements of the power plants at Tarapur (Maharashtra), Kota (Rajasthan), Kalpakkam (Tamil Nadu) and Narora (UP [Uttar Pradesh]) and the ones at Kakrapar (Gujarat), Kota (Rajasthan) and K耷a (Karnataka) which were at different stages of construction, Dr Moorthy said.

The initial fuel inventory for each power reactor of 235 MWE capacity amounted to 3672 fuel bundles, holding in all 55,500 KG of uranium oxide, and the annual

replacement requirement for the operation of the reactor was about half this number.

The raw material for the production of the uranium fuel was the uranium concentrate that was supplied from the uranium mine and mill at Jadugoda, Bihar. On the other hand the source mineral for the production of zirconium metal was zircon (zirconium silicate) that was available in the beach sand deposits in Kerala.

First Indigenous 500 MW Nuclear Power Machines

92WP0011A Bombay THE TIMES OF INDIA in English 19 Sep 91 p 4

[Text] New Delhi, Sept. 18 (UNI). For the first time in the country, the public sector Bharat Heavy Electricals Ltd (BHEL) has manufactured nuclear power machines of 500 MW rating for the Tarapur atomic power plant, the BHEL chairman, Mr P.S. Gupta said here today.

He said BHEL has supplied similar plants of 235 MW ratings for the Atomic power plants at Madras, Naroda (UP) and Kakrapara (Gujarat).

BHEL has on hand two nuclear power machines of 235 MW rating sets each for the Kaiga (Karnataka) and Rajasthan atomic power plants.

According to Mr Gupta, BHEL has now emerged as one of the select companies in the world possessing frontline technologies in power and associated fields.

During the past three years, BHEL has undergone a sea change in its programme for strengthening its technological infrastructure to make it one of the world's front ranking organizations.

Mr Gupta said BHEL today covers one of the most extensive range of products. In the power sector alone, the company produces turbines and generators from 1.5 MW to 1,000 MW. This includes industrial ratings which are custom-built to take care of power for process industries.

It has also manufactured hydro machines of different ratings, he said.

Over the years, the company has diversified into many industrial sectors. BHEL has delivered more than 50 deep drilling rigs to ONGC and Oil India for oil exploration. It has built high speed centrifugal compressors and dry turbines which form an essential part of the fertilizer industry. It has also supplied equipment to petrochemical industries besides automation programme of the steel plants as well.

Mr Gupta said BHEL had bagged many orders for major super thermal power stations in India against global competition.

Referring to the company's export performance, the chairman said last year it had bagged a record export order of Rs 300 crore. This included supply of two units

of 60 MW each to Cyprus and Malta and large "rehabilitation jobs" of a number of thermal power stations in Malaysia.

The World Bank's report on the Indian public sector company has described BHEL as "one of the most efficient enterprises in the industrial sector at par with international standards of efficiency."

More Heavy Water Reactors To Be Commissioned

92WP00094 *Bombay THE TIMES OF INDIA*
in English 18 Sep 91 p 8

[Text] *Bombay*, Sept. 17. Two more pressurized heavy water reactor units of 220 MW each—one at Narora and the other at Kakrapar will be commissioned in the next few months, Dr P.K. Iyengar, chairman of the Atomic Energy Commission, announced in Vienna yesterday.

According to details of his speech made available here today, he also disclosed that the central government has approved the setting up of two 500 MW pressurized heavy water reactors at Tarapur to accelerate the country's nuclear power programme.

Dr Iyengar told the general conference of the international Atomic Energy Agency that the lessons learnt in building and operating indigenous pressurized heavy water reactors had helped in developing new reactor designs.

India, he said, was deeply committed to the cause of disarmament and had submitted a comprehensive action plan to the third special session of the UN general assembly devoted to disarmament.

IRAN

India Offers Tehran Nuclear Research Reactor

LD0210140991 *Tehran IRNA* in English 1338 GMT
2 Oct 91

[Text] *New Delhi*, Oct. 2, *IRNA*—India is offering to Iran, a nuclear research reactor of 10 megawatt capacity. The threads of the offer, finalised earlier this year, after an exchange of visits by atomic energy officials of both countries, is to be picked up, now that the Iranian deputy foreign minister, Alaeddin Borujerdi, is here on a three-day visit to India. *'THE ECONOMIC TIMES'*, New Delhi, reporting this, further said: Defence and economic cooperation will form the basis of a new relationship between India and Iran, which are to be concretised during the deputy minister's visit.

The contours of the new relationships were also discussed at a meeting between the Indian foreign minister, Madhavrao Solanki, and his Iranian counterpart, 'Ali Akbar Velayati, in New York, about a week ago. India is currently considering Iran's request for arms, made after the visit of a defence team from Tehran, in April this year. Iran has also sought Indian help in building a pressurised heavy water reactor. Cooperation in the field

of nuclear energy is being discussed within the framework for the creation of an Indo-Iranian nuclear agreement. A team from Iran's Atomic Energy Organisation visited India in February, this year, when it made the request for the reactor.

India's nuclear establishment proposed, that a 10 mw research reactor should be offered to Iran. Iran is understood to be keen on developing a long-term defence relationship with India. The three-day state visit by the deputy foreign minister is a pointer in that direction. Alaaddin Borujerdi, the deputy foreign minister, arrived here Tuesday night, carrying a message of President Akbar Hashemi-Rafsanjani, for prime minister Narasimha Rao of India.

President Calls for Nuclear-Free Middle East

LD1509224291 *Tehran IRNA* in English 1737 GMT
15 Sep 91

[Text] *Tehran*, Sept. 15 *IRNA*—President 'Ali Akbar Hashemi-Rafsanjani has underlined Iran's support for implementation of all measures assuring peaceful deployment of atomic energy in the world.

The president's message to the General Assembly of the International Atomic Energy Agency [IAEA], due to open in Vienna, Monday, said "since the Islamic Republic, under any circumstances, disapproves deployment of atomic energy for military purposes, it supports world disarmament of atomic weapons, especially in the Middle East and the Indian Ocean regions, and would exert utmost efforts to this end."

It warned that attempts to gain access to nuclear technology for non-peaceful objectives would not only put the world's security and stability in jeopardy, but would halt peaceful application of this energy for development and progress of the Third World countries.

"If production of atomic arms is not stopped and arsenals are not destroyed, future generations would be under constantly [as published] threat of atomic confrontations," President Rafsanjani's message stressed.

He expressed hope that the IAEA, within the framework of its duties, could assure the Third World that countries which have access to atomic industries would not deprive them of the benefits of such technology and would not halt their peaceful utilization of nuclear energy.

Document Reports on Nuclear Activities

NC1609135891 *Tehran JAHAN-E ESLAM* in Persian
5 Sep 91 p 11

[Report on "Report No. 1" by the Energy and Telecommunications Committee of the State Propaganda Office]

[Excerpts] [passage omitted] The Iranian Atomic Energy Organization [IAEO] is dutybound to use radiation and nuclear energy in industries, agriculture, and services; to

establish nuclear power plants; to manufacture the raw materials needed by nuclear industries; to create the necessary scientific and technical infrastructure for implementing these projects; and to coordinate and supervise all the affairs that concern nuclear energy and the nation's use of radiation. Before the victory of the revolution, the objective was based on an ambitious plan that did not take into consideration the country's financial and physical potential or the need to prepare the necessary infrastructure. The IAEA's primary objective then was to produce 23,000 megawatts of nuclear power within 15 years. Of course, this plan put the country in major financial problems and made it completely dependent. Following the victory of the revolution, however, nuclear industry was treated realistically. It became obvious that to reach self-sufficiency to render the necessary services to the country, and to acquire nuclear technology there was no alternative other than basic research aimed at finding ways to create the necessary technical and scientific infrastructure. Within this context then the IAEA compiled and approved well-balanced plans to achieve its objectives and carry out its duties. [passage omitted]

1. In the IAEA's research centers, various plans and projects on research and power reactors, nuclear fuel, nuclear physics, chemotherapy, plasma physics, laser technology, the production and use of radio-isotopes in various radiopharmaceuticals, and the use of radiation waves have been implemented. [passage omitted]

2. In the field of uranium exploration, extensive preliminary explorations have been carried out and detailed air maps have been prepared from 13 areas in the country. So far more than 400 potential anomalous [preceding two words in English] regions have been identified and the existence of more than 3,200 tonnes of uranium deposits has been verified. In the following stages, the necessary plants for uranium extraction will be established in those mines which have been targeted as economically beneficial.

3. In the field of power production and the establishment of nuclear power plants, the IAEA's activities all last year have been aimed at maintaining the semi-completed nuclear power plants in Bushehr, completing the nuclear power plant sites, and defending the rights of the government in international arbitration courts on the abrogation of agreements. [passage omitted]

4. According to law and on the basis of the law on protection from radiation, the IAEA is assigned the duty of protecting workers nationwide from radiation, notably ionophores. [passage omitted]

5. In the field of technical support, to date more than 70,000 square meters of laboratories have been completed, equipped, and commissioned in Tehran, Esfahan, and Karaj. [passage omitted]

We hope that the IAEA researchers will continue their successes every day and that the talents of these dear ones will develop as much as possible.

IRAQ

China, Others Contributed to Nuclear Project

AU0210151791 Paris AFP in English 1423 GMT
2 Oct 91

[Text] Paris, Oct 2 (AFP) — China, Argentina, Brazil and Yugoslavia are among countries which supplied Iraq with equipment for its nuclear weapons programme, the scale of which has astounded Western experts, a reliable French expert source said.

Intelligence services around the world have been amazed at the revelations about the Iraqi programme which is based on equipment suitable for use either in a civilian programme or for the production of enriched uranium and plutonium, and detonators for a nuclear weapon.

The picture given by the source, who may not be named, is one of an advanced effort to build nuclear weapons in better facilities than those used in the West—a programme which Iraqi officials are determined to pursue.

Since May the so-called Club of London of countries with nuclear technology has reinforced controls and extended the list of banned materials.

The 26 members from the Organisation for Economic Cooperation and Development (OECD), the European Community, Scandinavian countries and six other countries in Eastern Europe, are to meet next week in Annapolis near Washington. A new list of products and recommendations might be published early next year.

The names of countries and companies said to have supplied equipment to Iraq were reportedly found in documents seized by the sixth United Nations mission to Iraq but the list has not been released officially. A report by the mission led by David Kay is expected at the end of the week or early next week. It would concern various purchases, particularly from Argentinian and Brazilian companies, and also from Yugoslav interests, and some "rather sensitive" Chinese equipment had been noted. The equipment was for use in the enrichment of uranium and for the detonation of an atomic bomb.

United Nations inspectors had been surprised to discover carbon-fibre centrifugal units of the most modern type available. Scientists in Baghdad had not worked on this advanced technique despite the existence in Iraq of a "fabulous centre for studying matter which is unequalled in the United States and in Europe as regards equipment", the source said. The investigators were also surprised at the way Iraq had distributed the work, and had used installations in civilian non-nuclear installations, military plants, and factories to continue their plan.

"What is more, this is still going on," the French specialist source said. "They clean covered areas, rebuild walls, hide railway lines. They have lain concrete here and there to hide things." He said: "Up to recently about 20 sites had been uncovered. After the sixth

mission we are at about 30. This does not mean that we have found everything. Other visits must be made. We discovered a total of 25 calutrons. The Iraqis were waiting for 90 more. It is the same for the centrifugal units."

The United Nations would have to decide whether to destroy or remove the nuclear installations. "This has not begun so the Iraqis are resuming their work. They must be destroyed, with dynamite if necessary. But where should one draw the line? There is a danger of destroying scientific installations.

"But there is too great a risk of seeing Iraq start up again, particularly since very high level Iraqi experts say that 'even if you destroy all our installations we have the knowledge and we shall begin again'."

The Iraqi problem, which had no connection with defensive weapons, highlighted the risk of nuclear proliferation. "Beyond the problem of the Middle East, where several countries are trying to acquire nuclear weapons because Israel has them, we should not forget the Indian subcontinent with Pakistan and India," the source said. "Under these conditions it is unlikely that France would ever supply the reprocessing plant which Pakistan has sought for years," the expert said.

Iraq's Nuclear Program Subject of UN Report

AU1609142591 Vienna PROFIL in German 16 Sep 91
pp 66-67

[Alan George report from London: "The Heads Are Still Smoking"—italicized words as transliterated]

[Text] Iraq's President Saddam Husayn is still trying to get his nuclear arms program. He might be successful despite the damage that allied bombers caused to the Iraqi nuclear facilities.

This conclusion is drawn by UN experts who recently investigated in Iraq whether the country is adhering the cease-fire resolution, which was signed by Saddam's representatives in April. According to this resolution, Baghdad would have to reveal its entire nuclear program and subsequently disassemble the facilities.

The report, dated 28 August, confirms above all that the Iraqis have been able to save the more important part of their nuclear facilities despite the Gulf war. The paper also notes that the Iraqis are still unwilling to give the names of those foreign companies and governments that contributed to the establishment of their nuclear arms program. The inspectors suspect that Iraq wants to resume the nuclear deals after the UN sanctions are lifted.

The UN experts, who traveled through Iraq from 27 July to 10 August, also confirm a long-standing assumption: It is now certain that Iraq has given top priority to the EMIS process for uranium enrichment (electromagnetic isotope separation).

In a calutron (abbreviation for California University Cyclotron) a strong electromagnet sorts uranium atoms into fissionable Uranium-235 nuclei and Uranium-238 nuclei, which cannot be used for bombs. The enriched material is introduced into another calutron, etc.; in this way the degree of enrichment of the uranium increases step by step. With a series of such calutrons the uranium explosive for "Little Boy," the Hiroshima bomb, was produced in Tennessee in the winter of 1944-45.

In the first Iraqi EMIS enrichment facility in Tarmiyah, north of Baghdad, production was started last year with a chain of eight calutrons. A second factory with 17 machines was just being built when the Gulf war broke out. Another facility with 20 calutrons was being planned.

According to the report by the UN inspectors, 90 calutrons were probably supposed to be installed in Tarmiyah—with this facility Saddam could have produced 15 kg of highly enriched (with more than 90 percent of Uranium-235) uranium, which can be used for weapons, every year—the amount that is sufficient for a bomb of the Hiroshima type. If the war had not broken out, Tarmiyah would have reached its full production capacity within 18 to 36 months. Thus, Saddam might have had his first bomb as early as at the end of 1992, at the latest, however, in mid-1994. Another, identical EMIS facility in Ash Sharqat (south of al-Mawsil) had already been built but not yet equipped with machinery. Both facilities were seriously damaged by allied bombings.

A large part of the equipment for the EMIS facilities was produced in Iraq by the nationalized company for heavy machinery construction in Al Dura as well as by the Badr General Establishment in Al Walid (20 km south of Baghdad), and by three factories of the Auqba-Bin-Nafi company in Al Amin, Al Ameer, and Al Radwan.

Parallel to the EMIS program, Iraq also developed another process for enriching uranium with high-speed centrifuges, which are linked up in stages in so-called cascades. In this project, too, as large a part as possible of the necessary equipment was supposed to be produced in the country. The centrifuges, which were assembled from ultrahard steel, were supposed to be produced within the framework of the Al-Furat (Euphrates) project in a factory complex in Al Walid, with a production of 600 centrifuges per year.

These facilities were under construction when the Gulf war broke out. "The complex," the UN report says, "was not damaged during the war and has so far not been known as a nuclear facility."

With a capacity of 600 centrifuges per year Al-Furat should have been put into service according to plan in mid-1991. A 100-centrifuge cascade should have started uranium enrichment on the company premises in mid-1993, and a 500-centrifuge cascade was supposed to

start producing bomb material at the beginning of 1996—possibly in a different location.

The UN report notes that a cascade with 1,600 to 2,000 centrifuges produces 25 kg of highly enriched uranium per year—enough for a nuclear warhead. The UN experts point out that Iraq did all this "for nonpeaceful purposes."

The basic material for the production of bombs is "yellow cake" (uranium oxide), which is gained in mining. For the EMIS program one gets gaseous uranium tetrachloride from this, for the centrifuge program uranium hexafluoride gas. All that was supposed to be done in a chemical factory near Al-Mawsil—codename "Al Jezira"—which was built especially for this purpose. At the end of 1989 production of uranium oxide was started there with a daily output of 500 kg. The production of uranium tetrachloride—in two facilities with an annual capacity of 150 kg—began at the beginning of last year. During the war the Al-Jezira factory was destroyed.

The UN Inspectors repeatedly pointed to Iraq's attempt to camouflage its nuclear program, to safe equipment for future use, and to keep the foreign companies and governments, which had helped it, anonymous.

The Iraqi nuclear program was headed by Dr. Ja'far, currently deputy chairman of Saddam Husayn's Nuclear Energy Commission and deputy minister of Industry. In talks with the Inspectors, Dr. Ja'far repeatedly claimed that the nuclear program has exclusively peaceful purposes. The UN report commented that "Dr. Ja'far was obviously aware of the contradictions in his statements and occasionally noted that the possibility to produce material for weapons is clear."

In the Gulf war with the United Nations the Iraqis practiced camouflage and deception. According to the UN report, the loading and storing area of the uranium oxide facility in Al-Jezira was emptied and covered with gravel.

A large part of Iraq's nuclear equipment was buried in remote parts of the desert. The UN report complains that the Iraqis are still refusing to reveal individual parts of their arsenal.

Iraq "has not fulfilled its obligation to reveal its sources," the report writes. At the centrifuge factory in Al-Furat "identification data of the producer and serial numbers were made illegible or cut out."

The minds of Iraq's nuclear gnomes are still intact. "The damage (to the centrifuges) has set back the program by two to three years," the report estimates, "but the know-how still exists."

Conference Focuses on Iraqi Nuclear Violations

AU1609141691 Paris AFP in English 1343 GMT
16 Sep 91

[Text] Vienna, Sept 16 (AFP)—Iraq found itself back in the spotlight over its repeated violations of atomic regulations as the International Atomic Energy Agency (IAEA) opened its 35th conference here Monday.

IAEA managing director Hans Blix said in his opening speech that agency Inspections had found that Iraq was attempting to develop atomic weapons but had not yet succeeded.

"Fortunately, according to our inspections, full industrial production capacity had not been achieved in Iraq's uranium enrichment program, for which no peaceful purpose can be found," said Blix.

The agency has carried out four inspection missions since the end of the Gulf war and is currently engaged in a fifth.

Blix described Iraqi attempts to build a nuclear bomb as a "challenge" to the agency to reinforce its monitoring activities. He called for special Inspections to be carried out based on information from satellites or intelligence services.

Iraq had refused permission for energy inspectors to visit certain sites while it carried out its undeclared program of uranium enrichment.

South Africa signed an inspection accord with the IAEA early Monday, removing the question of Pretoria's nuclear capability from the agenda following a series of intense debates over the past several years.

However, most IAEA members remained concerned over the attitude of North Korea, which has refused to sign an inspection accord with the IAEA until U.S. nuclear forces are pulled out of South Korea. Intelligence reports have said North Korea is close to manufacturing a nuclear device.

Israel's nuclear capability was also expected to be on the agenda, although the debate was expected to center around Egypt's proposal to ban nuclear weapons from the Middle East.

The three Baltic countries and Yemen were admitted to the body on Monday, bringing the total number of members to 115.

The conference, to continue until Friday, was also to discuss the safety of nuclear plants in Europe.

A proposal to set international standards for atomic plants met some opposition from countries opposed to international inspections of their nuclear power stations.

The environmental organization Greenpeace accused the IAEA on Monday of "disinformation, inaction and

"incompetence" and called on governments to vote for a radical reform of the agency.

Greenpeace particularly criticized a recent IAEA report on the health consequences of the Chernobyl nuclear catastrophe, saying the agency had played down the disaster.

Names of Firms Aiding Nuclear Project Held

*AU1110111091 Paris AFP in English 1100 GMT
1 Oct 91*

[Text] Vienna, Oct 1 (AFP)—The names of Western companies which contributed to the Iraqi nuclear programme will not be revealed until the United Nations Security Council gives its approval, IAEA spokesman David Kyd said here on Tuesday. Kyd said that the International Atomic Energy Agency (IAEA) was waiting for instructions from the Security Council, which had to decide on what was a political matter.

Documents seized by U.N. inspectors in Baghdad contained copies of contracts with several Western companies which had contributed to the Iraqi nuclear programme, Kyd had said on Sunday.

The U.N. team, led by U.S. national David Kay, was now in Bahrain to examine 27,000 pages of documents which had been seized, together with 20 hours of video recorded material and about 700 photographs, Kyd said.

This sixth mission of U.N. experts would prepare a report on the Iraqi nuclear programme.

The report would be sent to U.N. headquarters in New York at the end of the week, and the seized documents would be sent to Vienna. The experts were to return to Vienna by Friday at the latest and would give a press conference.

Detailed analysis of the documents would take several weeks, Kyd said.

Kay had said on Monday, shortly after arriving in Bahrain, that Iraq was still working on a sophisticated nuclear programme.

A seventh IAEA mission was due to visit Iraq in October to continue inspections of potential nuclear facilities, the IAEA said in a statement.

ISRAEL

Readiness To Sign Missile Technology Treaty

Strategic Talks Scheduled

*TA0310130391 Tel Aviv 'AL HAMISHMAR in Hebrew
3 Oct 91 pp 1, 4*

[Report by Avi Bnayahu]

[Text] The U.S. Administration has expressed its readiness to lift some of the restrictions imposed on Israel's

defense exports a few months ago. 'AL HAMISHMAR was told by senior defense sources that this was achieved after the Israeli Government undertook to embrace the principles of the nonproliferation treaty governing the distribution of missile technology. Israel and the United States are scheduled to hold their annual strategic talks in Washington at the end of this month.

[Tel Aviv HA'ARETZ in Hebrew on 3 October, in a report by 'Aviva Eldar and Ori Nir on pages A1 and 4, adds that the Israeli decision to sign the treaty followed "heavy U.S. pressure, accompanied by threats of sanctions, such as the closing of Pentagon bids to Israel's military industries." "Senior political sources have said that the drawn-out disputes with the United States on this issue were threatening to turn into another crisis between the two countries. According to them, the U.S. attitude—mainly that of Secretary of State James Baker—toward Israel was very harsh, and there was a feeling in the cabinet that 'the administration is out to get us'."]

Reserves Major General David 'Ivri, Defense Ministry director general, who visited Washington several weeks ago, discussed the issue with administration and Pentagon officials. He advised them of Israel's readiness to join the nonproliferation treaty on missile technology distribution, also called MTCR [Missile Technology Control Regime]. The official signing of the treaty will take place soon.

The U.S. pressure on Israel to sign the MTCR treaty became more intense after President Bush came out with his initiative. At present, a team of Israeli defense establishment officials and legal experts are busy analyzing the ramifications of Israel's joining the treaty and making preparations for the passing of new regulations that will require the approval of a Knesset subcommittee.

As reported by 'AL HAMISHMAR about a month ago, the U.S. Administration had imposed grave restrictions on parts of the State of Israel's defense exports. This step was expected to cause extensive personnel cuts in the defense industries. The move was made in the wake of a new U.S. policy and various legislative initiatives.

Defense elements have said that the U.S. policy applies to several other countries in Europe. As soon as Israel agreed to sign the MTCR treaty, however, the administration agreed to lift some of the restrictions imposed in the recent period.

The defense establishment and the IDF [Israel Defense Forces] General Staff are preparing for the annual strategic talks, scheduled to be held in Washington at the end of the month. At the talks, named JPMG [Joint Political Military Group], Israel will submit a request to raise Israel's \$1.8 billion in aid to \$2 billion. The request will be officially explained by the need to preserve the purchasing power of the aid, which has eroded in recent

years. The JPMG talks will also cover joint issues in the sphere of strategic cooperation between the two countries. Israel will also ask for an acceleration of the supply of spare parts and weaponry in the sum of \$700 million, which had been approved by Congress.

Defense elements have said that, to date, the United States has given no indication regarding a possible intention to postpone the talks in view of the political situation. It will be recalled that last year, Secretary of State James Baker ordered the talks postponed in order to exert pressure on Israel.

Arens on Missile Accord

TA0310184291 Jerusalem Israel Television Network
in Arabic 1700 GMT 3 Oct 91

[Interview with Defense Minister Moshe Arens by Shlomo Ganor and Dani Levi on 3 October—recorded in Hebrew with Arabic subtitles]

[Excerpts] [passage omitted] [Levi] Mr. Minister, how would you define Israeli-U.S. relations after the delay in the loan guarantees, the linkage with the settlement issue, and the pressure on the matter of missile technology proliferation?

[Arens] First of all, there is no pressure on us. I saw the reports in today's newspapers, and they are full of inaccuracies. There are differences between us on certain issues—not for the first time in Israeli-U.S. relations, nor for the last. I believe we should not make the mistake of exaggerating the differences between us and reaching the inaccurate conclusion that the very fabric of the strong and special ties—which now exist and will continue to exist—between Israel and the United States is coming apart.

[Ganor] Can the United States still play the role of an honest broker?

[Arens] I must say I do not like the phrase honest broker. The United States is the leader of the community of democratic states and Israel is a member of that community, a small but not insignificant member, and the only democracy in the Middle East. We share mutual values and ideals with the United States, and therefore joint interests as well. It is difficult for me to see the United States as an honest broker between ourselves and totalitarian regimes. I believe the United States simply cannot be that. It automatically leans toward us because of the partnership between us.

[Ganor] To dwell for a moment on the matter of missile technology proliferation, I gather from your statements that Israel has not been pressured to join that convention.

[Arens] There was no need to pressure us. The United States took the initiative to prevent the spread of missile technology. As you clearly understand, we are interested in this just as much as the United States, perhaps even a little more.

[Levi] Can such controls not interfere with the development of the technology for the Arrow missile, for example?

[Arens] It has nothing to do with it. Here we are talking about attempts to control the distribution of technology from countries that possess that technology to countries that do not. Israel, as you know, has technology in that sphere, and has made great achievements. The Arrow program proves that point. We never hesitated to join the principles of a convention whose purpose is to prevent the spread of those technologies to countries that lack them.

[Ganor] Does this mean that Israel is joining the convention?

[Arens] We are not talking exactly about joining it, but about declaring that we adopt its principles. [passage omitted]

[Ganor] What is Israel's feeling about the UN probe of Iraq's nuclear capability?

[Arens] We realize that Saddam Husayn will make every effort he can to possess lethal weapons, and that if he has such weapons he will use them. We are preparing accordingly.

[Levi] Do you think that Israel can rely on the UN observers to find and destroy those weapons?

[Arens] If you are asking whether Israel has any other alternative, such as introducing Israeli inspectors into the area, that is not a realistic alternative. I would say that, considering the team's performance and that of the group leader, whom we saw on television, I think we should express all our appreciation for what appears to be a very thorough job requiring a great deal of courage.

[Levi] So does Israel reserve the option to act against the Iraqi launchers and missiles?

[Arens] We will do whatever we think needs to be done to guarantee Israel's security. [passage omitted]

Levi at UN Urges Arabs To End Arms Race

TA0310152191 Tel Aviv HA'ARETZ in Hebrew
3 Oct 91 p A3

[“Exclusive” report from New York by Shlomo Shamir]

[Excerpt] Addressing the UN General Assembly yesterday, Foreign Minister David Levi called on the Arab leaders to abandon the arms race and save the resources they invest in it. The foreign minister suggested that they join the chemical nonproliferation treaty in the region.

“On the eve of a regional peace conference,” Levi said. “I appeal to the leaders of the Arab countries: Stop the mad race for weapons of destruction, contain the urge to ruin, let blind hatred go, do not scatter your resources in

vain, do not exchange your countries' chances for progress and prosperity for the hallucination that Israel can be destroyed."

The foreign minister pointed out that "the elimination of chemical weapons all over the world, and especially in the Middle East, is of prime importance, which is why Israel expressed its readiness to join the chemical non-proliferation treaty. Yet in order for the treaty to be effective, all the countries in the area must join it."

In a speech to the Conference of Presidents of American Jewish Organizations yesterday, Levi disclosed that Secretary of State James Baker had rejected outright an Arab demand that he insist that Israel freeze the settlement activity as a precondition for the convocation of the peace conference. Levi claimed that Baker told the Arabs he could not present such a condition because the United States is not demanding it.

The minister, addressing the General Assembly in French, began by wishing its president success.

Foreign Minister Levi mentioned that in a speech at the United Nations last September he warned that Israel would be the target for Saddam Husayn's attacks, and indeed it was attacked with missiles.

Levi said that the Iraqi despot continues to hoodwink the world and is trying to conceal the fact that his military strength is being rebuilt. Last year's events, he said, have opened the world's eyes to Israel's stature as the standard bearer for democracy in the Middle East and have simultaneously brought about a reevaluation of the Arab-Israeli conflict. "Many countries realize today that the root of the prolonged and bitter conflict is the refusal of the Arab countries, except for Egypt, to acknowledge Israel's existence and accept its sovereignty." At the same time, it has been demonstrated clearly that Israel is the only country in the world subjected to constant and real physical threats.

The foreign minister mentioned Israel's peace plan, which is based on five [as published] principles: limiting and monitoring the arms race, direct and unconditional negotiations toward a peace treaty between Israel and each of the Arab countries, a phased solution to the Palestinian problems in a joint framework with Jordan, and working out plans for regional development with international assistance.

Referring to the UN resolution equating Zionism with racism, he noted President Bush's appeal that the organization repeal the resolution, saying: "The clear demand of the President of the world's greatest democracy will continue to resonate within these halls and everywhere else, until that shameful resolution is repealed." [passage omitted]

LEBANON

Hizballah Cites U.S. on Iraqi Nuclear Program

NC0310064891 (Clandestine) *Voice of the Oppressed in Arabic to Lebanon* 0530 GMT 3 Oct 91

[Text] Diplomatic sources have disclosed that U.S. intelligence has submitted to the White House information indicating that more than 500 Arab scientists have participated in building the Iraqi nuclear program and that most of these scientists are Egyptians, while the rest are Iraqis and Moroccans.

U.S. intelligence reports stress the gravity of the Iraqi nuclear program and the need to eliminate these Arab scientists so that they will not resume this nuclear program elsewhere. Meanwhile, the CIA has begun contacts with other intelligence agencies, especially with Israel's Mosad, to gather information on these Arab scientists. The Mosad has actually begun preparing lists of these scientists preliminary to liquidating them.

PAKISTAN

Open Nuclear Declaration Favored

U.S. Favors India

91AS1500X Lahore NAWA-I-WAQT in Urdu 18 Aug 91 pp 1, 7

[News Report: "Only Option for Pakistan: Declare Nuclear Capability Openly"]

[Text] Lahore (Magazine Report)—The United States' policy about Pakistan's nuclear program is malicious. It is practicing double standards. It has imposed restrictions on Pakistan and is giving special treatment to India and Israel at the same time. The news media all over the world is denouncing it for its double standards. The United States is trying to hinder nuclear capability of Islamic countries under an organized plan while the U.S. laws are being ignored when it comes to India. This indicates U.S. designs against the Muslim world. These opinions were expressed by some of our politicians, intellectuals, and political analysts in a magazine forum hosted by Mohammed Sharif Kayani and Khawaja Saqib Ghafur.

Commenting on the subject of Pakistan's nuclear program and the U.S. policy, Senator Hafiz Hussain Ahmed said that, "the U.S. policies are double and unfair and showed prejudice against the Muslim world. The United States should tell us why it allows Israel to make and store atomic bombs and why do the seven major nations have atomic bombs? Why have the United States and the Soviet Union stockpiled nuclear weapons? The U.S. policy is aimed at making sure that Muslim countries do not attain nuclear capability. Why doesn't the United States force India to stop its nuclear program? When U.S. ambassador, Robert Oakley, talks about the results of Pakistan crossing a red light, he should know that his

country had crossed that red light many years ago and is telling us not to do that. The United States wants [illegible] become weak and no one could be equal to it. The United States put restrictions on Pakistan's request several times even for bullets after India blasted an atomic bomb in 1974. According to the CIA director's report, India has made over 12 atomic bombs and is capable of making many more. Pakistan and other Islamic countries should form coalitions to form a policy to counter the new U.S. world order. All our political parties should ignore their mutual differences and agree on a policy about the nuclear problem." Hafiz Hussain Ahmed continued, "Robert Oakley's statement is interference in our independence, autonomy, and internal affairs. This is an insult to self-respecting Pakistanis. Attaining nuclear capability is necessary for Pakistan's industrial, economic, and agricultural development. This is an issue of our existence and progress and the U.S. officials should understand our problems. The former U.S. ambassador's statement is an unofficial declaration of war against Pakistan." He further said that if our government was forced to take action against our national interest and pride, then the United States would not be satisfied even after inspecting our nuclear installations and that the United States could not force us to do anything.

Dr. Rafiq Ahmed, former vice chancellor of Punjab University, said that "When the former ambassador Oakley talked about our crossing the red light, I wanted to refer to traffic laws all over the world and say that it was the duty of everyone to respect and obey the red light and all those who ignore it should be punished. However, we have not seen anyone invent a red light that has double standards. It is red for one car and green for another car! A red light is red for everyone including the United States, India, Israel, and the Soviet Union. Pakistan's nuclear program is for nuclear energy and not for making atomic bombs. The United States thinks that Pakistan is making atomic bombs. We have the right to ask the United States, why has it made atomic bombs itself. Is it not true that many countries have made innumerable bombs after 1945? None of these bombs have been used because when more than two countries have such bombs, it helps in maintaining peace. It is called balance of power. The United States should have a rule asking that either no country should be allowed to make atomic bombs or all should be allowed to do so. Does not an independent nation need atomic bomb to make sure its independence is protected? Pakistan needs nuclear capability to eradicate poverty, improve agricultural production, reduce unemployment, and carry out an industrial revolution. The United States should understand that we cannot do that without nuclear capability. Robert Oakley said that the United States stopped India from attacking Pakistan last year. This shows that Pakistan's enemies never miss an opportunity. Oakley did not see India pass that red light in 1974."

Itaul Rehman said, "It is important for Pakistan to attain nuclear capability for industrial development.

independence, security, and making atomic bombs because the United States will move toward this sub-continent after forcing the Arab nations to recognize Israel. It will try to stop Pakistan's nuclear program and will try to solve the Kashmir issue according to its new world order. It will tell Pakistan that it does not have to enter the nuclear arena because it will resolve our differences with India. India had attacked us three times in the past and always has been an aggressor. Pakistan has no Saddam Hussain. The United States should know it from our history. We have only one option and that is to openly declare our intention to become a nuclear power. No one was able to stop any country from becoming a nuclear power in the past and this [nuclear power] could be a great help in Pakistan's security. We should show our strength. Only Pakistan can control India's supremacy in this region. Pakistan is the only hope for smaller countries like Sri Lanka, Nepal, Bhutan, Bangladesh, Sikkim, and Maldives. Therefore, we have to take a bold stand."

Self-Sufficiency Reached

91AS1500Y Karachi JASARAT in Urdu 7 Aug 91 p 4

[News Report: "Pakistan Should Announce Nuclear Capability—Tariq Chowdhery"]

[Text] Islamabad (Jasara Correspondent)—Pakistan has attained full nuclear capability. This is no longer a secret. Pakistan should declare it openly, and offer to sell the technology to other Islamic nations. This opinion was expressed by Senator Mohammed Tariq Chowdhery in a press conference last evening. He was talking about Pakistan's position in the world, and said that Pakistan has always been hurt because of its foreign policy. It has lost the respect of other nations. The cooperation between Jews and Christians under the "new world order" has created a new situation, and the Islamic world has not expressed any interest in countering it. Pakistan, which has played a major role in the Islamic world, has become inactive because it has no foreign minister. We have no one to participate in the Foreign Ministers Conference of Islamic Nations. We have given the whole authority to a bureaucrat. He said that we needed a foreign minister who could determine the priority of our foreign policy and international relations.

German Arms Sales Embargo Cited

BK2109031491 Delhi All India Radio Network in English 0245 GMT 21 Sep 91

[Text] A leading daily of Pakistan, THE NEWS, has reported that Germany has imposed an embargo on all military sales to Pakistan with immediate effect. The

embargo also covers material which will be used for the manufacture of lethal weapons. The report says consequently, shipments of purchases already made have been stopped.

Our Islamabad correspondent reports that a number of other military hardware suppliers have recently imposed the ban on arms sales to Pakistan. They include Austria and some Scandinavian countries.

China To Set Up Two Thermal Power Stations

*BK2109164991 Islamabad Radio Pakistan Network
in English 1600 GMT 21 Sep 91*

[Text] Under an agreement signed in Beijing, China will set up two thermal power units of 201-megawatt capacity at Muzaffargarh at a total cost of \$157 million. The agreement was signed by the Water and Power Development Authority chairman and the chief of the Chinese Machinery and Equipment Export Corporation.

U.S. Nuclear Arms Pullout From Europe Advocated

LD1709095891 Moscow Radio Moscow World Service
in English 1210 GMT 16 Sep 91

[Yuriy Solton commentary]

[Text] Moscow has repeatedly suggested that Europe be rid of all weapons of this kind with a range of up to 500 km. The Russian President Boris Yeltsin reiterated that last week. Concrete proposals were put forward when the Soviet Foreign Minister Boris Pankin was meeting with the United States Secretary of State James Baker. As you probably know, this country has already withdrawn its tactical nuclear weapons from the East European nations that were affiliated with the former Warsaw Treaty Organization.

Significantly, it did so unilaterally. The United States on its part still has some 4,000 nuclear artillery shells, bombs, ground-based missiles, and nuclear anti-submarine bombs in Western Europe, namely Germany, Britain, the Netherlands, Belgium, Italy, Turkey and Greece.

The presence of tactical nuclear weapons in Europe could be justified when the continent was split. There were two military alliances opposing each other. But the Warsaw Treaty Organization is a thing of the past. New nations have come into being in Eastern Europe and the two Germanies have reunited, and Latvia, Estonia, and Lithuania have won full independence.

In this context, the presence of tactical nuclear weapons is becoming absurd. What groups can they be used against? The allies of America or new democratic nations? Besides there is the danger of unauthorized use or even seizure no matter how tightly the positioning ground [as heard] can be guarded.

Moscow has naturally welcomed the statement of the NATO Secretary General Manfred Woerner that a decision to scrap tactical nuclear weapons can be adopted as early as next November. But ground-based weapons alone are liable for scrapping, which is a pity.

America has not yet spelt out a future for its new generation air-to-ground nuclear tactical missiles for bombers based in Europe. Will it adopt them by 1995? It is yet to adopt a final decision.

The European situation seems ripe for ridding the continent of all tactical nuclear weapons without hesitation. Unilateral steps could be taken even before long talks could produce comprehensive agreements. An approach of this kind draws growing support from Moscow.

U.S. Fears Nuclear Arms in Ethnic Strife

PM0110084591 Moscow KOMSOMOLSKAYA
PRAVDA in Russian 1 Oct 91 p 5

[“Our Commentary” by A. Vasilyev: “Bush Wants To Stay in the White House and Keep Gorbachev in the Kremlin”]

[Excerpt] When the Strategic Offensive Arms Reduction Treaty was signed during the Soviet-U.S. summit at the end of July and beginning of August in Moscow, most experts did not think that the next arms talks would be held soon. They took too long reaching understanding on strategic offensive arms, the subject of tactical weapons was too complex, and there was no need to rush. Regional problems seemed more pressing. What has changed now? Why has G. Bush decided to submit his own initiative?

The failure of the military coup speeded up the disintegration process within the Soviet Union. The great nuclear power is breaking up into individual states and it is impossible to predict what relations will be like between these states and whether they will be able to resolve interstate problems peacefully. The United States is most concerned that nuclear weapons will be used in the event of such conflicts. Moreover, whereas strategic arms are located on the territory of the four most stable republics—Russia, Kazakhstan, Belorussia, and the Ukraine—and are, in all probability, under Moscow's tight control, tactical weapons are scattered throughout the Soviet Union and it is extremely hard to control [kontrolirovat] their movement since it is a question of tactical missiles and nuclear-tipped artillery shells. So the only means of securing the world against further Chernobyls is to destroy the tactical nuclear arms while they are still under the control of the central authorities. The White House obviously hopes that the Kremlin will not be overlyfussy about details in the situation that has taken shape and that the talks will be extremely vigorous. What is more, M.S. Gorbachev can be expected to submit his own proposals shortly which will be even more radical and portentous than G. Bush's initiative. At yesterday's news conference, for instance, V. Petrovskiy, USSR first deputy foreign minister, already suggested banning nuclear weapons tests. [passage omitted]

France ‘Committed’ to Nuclear Deterrence

PM0110123191 Moscow IZVESTIYA in Russian
1 Oct 91 Union Edition p 4

[By correspondent Yu. Kovalenko: “Moscow and Washington Back Paris Initiative. F. Mitterrand Announces Convocation of International Conference on Problems of Nuclear Disarmament”]

[Text] Paris—French President F. Mitterrand said that G. Bush and M. Gorbachev backed his proposal to convene a conference of Europe's four nuclear powers to consider problems relating to the security of the Soviet

arsenals. This conference, F. Mitterrand said, speaking in the Paris suburb of Evry, will be held shortly, involving representatives of the former Soviet Union's sovereign republics, the United States, Britain, and France.

Voicing a high opinion of Washington's recent decision to cut nuclear arsenals, the Elysee Palace described it as "a real turning point" in disarmament. The new U.S. initiative, however, will not result in the revision of French military policy, which has lately undergone some amendments. Paris is contributing to the nuclear disarmament process, Defense Minister P. Joxe stressed. Thus, in July 1991 France decided not to produce the new S-45 strategic missiles, which should have replaced the S-3 missiles on the Albion Plateau by the end of the century. What is more, the nuclear submarine Redoutable will be written off next year.

As for tactical nuclear weapons, F. Mitterrand announced in early September that production of the new Hades missiles is being reduced to 30 units. They will be stored in dumps and not mounted at operational sites. Last, the Elysee communique notes that France, which has roughly 400 nuclear warheads, will subscribe to talks on eliminating strategic weapons when the Soviet Union and the United States have considerably reduced their stocks.

Let us recall that at the beginning of this July, France put forward its own disarmament plan envisaging a cut in the nuclear arsenals to the lowest level reconcilable with the need for deterrence, the destruction of chemical weapons, and the nonproduction of bacteriological weapons. Paris' decision to join the Nuclear Nonproliferation Treaty was the most important element in this plan. People on the banks of the Seine favor the UN Security Council's playing a key role in the disarmament process. On France's initiative, the five permanent members of the UN Security Council have begun consultations on formulating measures to restrict exports of conventional arms.

While making some amendments to its military policy and abandoning, often for budgetary considerations, production of some new types of missile, France nevertheless intends to remain committed to the doctrine of nuclear deterrence in the foreseeable future.

Danish Company To Equip Nuclear Power Plants
DW2609023991 Moscow *INTERFAX* in English
2030 GMT 25 Sep 91

[From "Soviet Business Report dated 'September 26, 1991'"; transmitted via KYODO]

[Text] Brue & Kjaer, a Danish company specializing in the manufacture of diagnostics systems for nuclear power plants, is negotiating the sale of its products for use in the Ukraine (Yuzhno-Ukrainskaya and Zaporozhskaya facilities), central (Kalininskaya power plant) and northern Russia (the Kola power plant). At the

current stage, the Soviet side is seeking to obtain loan guarantees, a ticket to the contract.

The company has service centres in Moscow, St. Petersburg (Leningrad) and Kiev.

According to the company's Moscow official, the Soviet Union currently accounts for 8 to 9% of the Brue & Kjaer volume of sales.

Afghan Islamic Party Gains Access to Missile Production

PM0110102591 Moscow *PRAVDA* in Russian
21 Sep 91 Single Edition p 5

[Report by correspondent Yu. Vladimirov: "A Threat, or Perhaps a 'Canard'"]

[Excerpt] Kabul, 20 Sep [passage omitted] Foreseeing the possibility of military supplies from the United States and the West being halted, the mujahedin have organized their own firearms production, AFP reports from Islamabad citing an interview with an unnamed Afghan opposition spokesman. According to him, the mujahedin can repair artillery pieces and other combat hardware independently. For example, the Islamic Party of Afghanistan group led by Yunis Khalis in Nangarhar Province has opened workshops to service tanks and armored personnel carriers and produce spare parts for them. There are reports, AFP writes, that the Islamic Party of Afghanistan has gained access to the production of strategic missiles and BM-1 launchers (PRC). The agency goes on to say that the capacity of these installations is unknown.

What is this: A political canard or a real military threat?

India To Depend Less on USSR Arms Production

LD3009132291 Moscow *TASS* in English 1031 GMT
30 Sep 91

[By TASS correspondent Aleksandr Vinogradov]

[Text] New Delhi September 30 TASS—"India is reducing its dependence on the USSR in arms production and plans to join soon the world armaments market," it was noted during the Bombay seminar on problems of arms import.

Addressing the seminar, several experts noted India's substantial progress in the development of the latest types of armaments, including torpedoes and guided missiles. This allows it to lay claim to a certain share of the very profitable world armaments market.

Until recently India imported almost 70 percent of all its armaments from the Soviet Union. However, local political analysts and military experts are increasingly apprehensive lately about the unstable situation in the Soviet Union and its possible failure to continue such deliveries.

Pakistani Missiles to Afghanistan Criticized

PM0310083991 Moscow *IZVESTIYA* in Russian
2 Oct 91 Union Edition p 7

[Report by G. Charodeyev: "Arms Shipments From Pakistan Are Continuing"]

[Excerpt] Foreign news media have reported large deliveries of arms and ammunition, including heavy combat hardware and missiles, from Pakistan to deep inside Afghan territory in recent days. Daily, large numbers of trucks carrying modern weapons and munitions are heading for Afghanistan. In this context V. Petrovskiy, USSR first deputy foreign minister, declared at a briefing for Soviet and foreign journalists that such actions can only lead to an escalation of violence and create additional obstacles in the path of a peaceful settlement in Afghanistan. "They also run counter to official statements of the Pakistani leadership about its commitment to a political solution of the problem and support for the 21 May statement of the UN secretary general." [passage omitted]

Armenia Endorses Nonproliferation Treaty

OW2509165591 Moscow *INTERFAX* in English
1600 GMT 26 Sep 91

[Transmitted via KYODO]

[Text] The Supreme Soviet of Armenia has announced its intention to join the 1968 Nuclear Non-Proliferation Treaty and take on all the commitments ensuing from it.

It also announced that Armenia will endorse the CSCE [Conference on Security and Cooperation in Europe] documents adopted in Helsinki in 1975, in Madrid in 1980, in Copenhagen and Paris in 1990, and the 1986 Vienna Convention.

On Wednesday, the parliamentary session in Yerevan discussed the range of powers of the future president of the republic, due to be elected on October 16.

Estonia, Lithuania, Latvia Join IAEA

OW1709224991 Moscow *BALTFAX* in English
1930 GMT 17 Sep 91

[Transmitted via KYODO]

[Text] The three Baltic states have been granted membership in the International Atomic Energy Agency (IAEA) at its annual conference in Vienna on September 16.

The IAEA was set up in 1957 to do research in and oversee the use of nuclear energy for peaceful purposes. Representatives from 113 countries now take part in its work.

A release by the press-service of Estonia's Foreign Ministry says that the republic has joined the IAEA primarily because it wants to carry out studies and, if necessary,

decontamination work in areas that may be contaminated by radiation. One example cited in the press-release is the town of Paldiski near Tallinn where there used to be a base for Soviet nuclear-propelled submarines.

Interrepublican Control of Nuclear Power Urged

OW2509005191 Moscow *INTERFAX* in English
2122 GMT 24 Sep 91

[From the "Soviet Business Report dated 'September 25, 1991"'; transmitted via KYODO]

[Text] On Tuesday the USSR Committee for the Operational Management of the National Economy suggested to the republican authorities that all nuclear installations on their territories should be run by a specialized interrepublican body, but that the republics would keep title to the installations.

Operating currently in the Soviet Union are 15 nuclear power plants with a total of 46 energy units. In 1991 the Soviet nuclear power sector plans to export \$650 million worth of electricity it generates.

IAEA Team Inspects Kola Reactor

92P50001A Moscow *PRAVDA* in Russian 23 Sep 91
Single Edition p 2

[Report by PRAVDA external correspondent A. Khramov: "This Is the Best of the Ships..."]

[Text] A group of experts from the International Atomic Energy Agency [IAEA] is completing its work in the study of the reliability of the operation of the Kola Atomic Power Station.

According to the evaluation of the IAEA experts, who worked here in April, the Kola Atomic Power Station meets all international norms for ensuring safety in the operation of nuclear reactors. With the completion of the present inspection a final report, dealing at once with several atomic power stations in the USSR and the countries of Eastern Europe, will be prepared. International experts have already finished going over atomic power stations in Kozloduy, Bulgaria; in Bogunitze, Czechoslovakia; in Greifswald, Germany; and also in Novovoronezh.

The IAEA specialists were also on board the atomic icebreaker Taymyr, where they acquainted themselves with the work of its nuclear installation and with the safety measures used in operating it. Eshla Ervin, the leader of the mission, expressed their opinion:

"I have been on many ships. This is the best of the ships that I have visited."

Foreign Worries Over USSR Nuclear Arms Viewed

91WC01704 Moscow *TRUD* in Russian 18 Sep 91 p 3

[Article by E. Alekseyev, *TRUD* international observer: "Nuclear Worries: Will They End?"]

[Excerpts] By 1998, the United States and the USSR will still have: Strategic nuclear delivery systems—1,600 units each; nuclear weapons for them—6,000 units each.

Two powerful waves of nuclear worries have shaken our planet like tsunamis in a short period of time. Remember that when the intensity of the situation in the Persian Gulf region reached the "war" mark—mankind shuddered. Does Iraq have nuclear weapons and will it use them? It turned out that up to that point Iraq did not have these weapons. That was a relief.

Now we have been flooded with questions from worried people. Did we lose control of the nuclear weapons during the days of the putsch? Here it is very important that while many people panicked, NATO officials, as we later learned, remained calm. The unnamed NATO representative who was mentioned, in particular, by the French *LIBERACION*, testified that "throughout the crisis in the USSR we quite attentively observed all forms of military activity on the territory of the USSR. There was not a single moment of danger or even the slightest threat involving nuclear weapons." Well. If that is true, as they say, thank God.

But anxiety in the world has not been allayed. And what will be the fate of Soviet nuclear weapons after these largely unpredictable changes? Uneasiness has been expressed and is still being expressed not only, as it were, by emotional people, but also by respected specialists. The former leader of the U.S. delegation in the Soviet-American negotiations on nuclear and space weapons in Geneva, Max Kampelman, said right out that the proclamation of state independence by the USSR republics on whose territories nuclear weapons are located could threaten the security of the United States and the entire world.

As we know, explanations and assurances followed from the Soviets. In a recent Soviet-American satellite television broadcast USSR President M.S. Gorbachev emphasized that control over nuclear weapons in the Soviet Union was stronger than it is in the United States and "nobody should be alarmed about that." But RSFSR [Russian Soviet Federated Socialist Republic] President B.N. Yeltsin explained that the nuclear weapons now on the territory of Russia, the Ukraine, and Kazakhstan will be moved in the future from the Ukraine and Kazakhstan to Russia. And this gives the RSFSR the major responsibility for controlling them. (There are nuclear weapons in Belorussia as well.) [passage omitted]

Let us be objective and recognize that it is not only the events in the Soviet Union that prolong the nuclear risk. It will remain as long as there are nuclear weapons and as

long as other states in addition to the present "nuclear" ones are trying to get their hands on them. As long as they persistently promote the idea that in all the postwar years nuclear weapons have been a "restraining factor" and a "deterrent" which made it possible to avoid a worldwide military explosion. But I think that all this is still purely speculation. Has this nuclear "restraining factor" prevented the hundreds of armed conflicts that have taken hundreds of thousands of human lives? Did it stop the Iraqi aggressors or would it have kept them from using this terrible weapon if it had been ready?

Recent events, in my opinion, dictate with special insistence the need to work more actively on solving problems of nuclear disarmament. There are already calls for a sharp—even by 90 percent—reduction of nuclear arsenals. Many are already speaking about the urgent need to solve the problem of tactical nuclear weapons. All this is true and this work must be stepped up. But in general to continue to preserve and improve nuclear weapons as a "universal deterrent" is immoral and inhuman, and it costs a lot of money. And there is, I am convinced, the underlying problem whose solution would contribute most effectively to a rapid advancement toward a non-nuclear world. This problem is halting nuclear testing. [passage omitted]

Sverdlovsk 1979 Anthrax Outbreak Revisited

Official Version Supported

91WP01504 Sverdlovsk *URALSKIY RABOCHIY* in Russian 12 Mar 90 p unknown

[Article by S. Bogomolov: "19th Post: a Reporter Is a Rare Guest Here"]

[Text] This is truly a town within a city: here, beyond a concrete wall, in places with barbed wire, is everything needed for the independent existence of adults as well as children. There are two schools—a music school and an intermediate school (with a computer class, by the way)—and a House of Culture. It even has its own firemen.

Life at this place flows significantly more calmly than it does for other citizens of Sverdlovsk. They do not have their own hooligans here and outsiders cannot get through the KPP [checkpoint]. As for those who like to go over fences illegally, their actions are stopped most decisively. The post is clean and well maintained and everything is visible.

By the way, why is it called the 19th? It turns out that there is no secret here. The military builders very simply have the habit of numbering their facilities. So this name stuck with the people in Sverdlovsk, especially since the real name of this institution was known to only a small circle of persons. We can now say it. *URALSKIY RABOCHIY* has already reported on the visit of a delegation of public representatives and journalists to military scientists at the 19th post. Here is located the Sector for Military Epidemiology of the Microbiology Research

Institute of the Defense Ministry. A research institute for vaccines was located here until 1986. And even before then, the Cherkassko-Sverdlovskoye Infantry School was here.

By the way, we were not primarily interested in this remote past but in the comparatively recent past. Whatever the scientists showed us and whatever they said, the conversation inevitably returned to the main question.

The Tragedy of 1979—Who is Guilty?

An epidemic of anthrax was registered in that memorable year of 1979 for all citizens of Sverdlovsk. Although not many, there were some people who knew that some sort of work having to do with anthrax was going on in the 19th post. The fact that vaccines against this horrible disease were being developed and produced there was known to a very small group of people. The atmosphere of secrecy did even more to enhance the alarming situation.

Official reports failed to mention the 19th post, which supported the version of the rumors even more. The military departments remained silent—demonstratively and arrogantly, as it seemed to everyone then. The only source that they believed more than the official statements was the broadcasts of various "radio voices" that sometimes penetrated the "thickets." Our mass media reacted sluggishly.

Meanwhile, in Chkalovskiy Rayon, they were washing roofs and people in protective suits and gas masks took samples next to the post and in places the upper layer of soil was removed. When patients arrived at the city hospital No. 40, they were asked whether they had anything to do with the 19th post. All of this increased the panic in the city and gave rise to even more frightening rumors. People were firmly convinced: something of the military exploded and the wind had spread the poison through part of Chkalovskiy Rayon.

Naturally our delegation was primarily interested in this question of who is guilty of this tragedy. I will mention that the delegation was made up of People's Deputy of the USSR V. Shmotyev; First Secretary of the Sverdlovsk CPSU Gorkom V. Kadochnikov; First Secretary of the Chkalovskiy CPSU Raykom A. Voronin; Chairman of the Chkalovskiy Rayon sovetsk G. Ionov; V. Chukanov, professor, member of physical and mathematical sciences, and director of the scientific-engineering center for ecological safety of the Ural Department of the USSR Academy of Sciences; V. Trubinkov, chairman of the city committee for the preservation of nature; and several journalists.

I am not a specialist in microbiology and epidemiology. In 1979, I was a student and the basis for all my knowledge of those events was those same rumors and an incomprehensible as well as overdue article in LITERATURNAYA GAZETA. Just as most other citizens of

Sverdlovsk, I was certain that it could not have happened without the military here. But I heard the arguments of the military people and they seemed quite convincing to me. By the way, let us allow them to speak for themselves. Col. A. Kharechko, chief of the Sector for Military Epidemiology and candidate of technical sciences:

"The rumors circulating in the city in the spring of 1979 about a supposed explosion in the territory of our institution and ejection into the external environment of an anthrax pathogen were without any real basis. Above all because we never had anything at all to do with explosions. There simply were not such substances, materials, or processes in our laboratories that could lead to an explosion."

"I think that this absurd version was spread because most people are more inclined to believe fantastic things than real and natural explanations. Clearly the very unusual and tragic nature of the situation required such unusual and sensational reasons. A very important role was also played by the regime of secrecy and the infamous departmental interests."

"Prior to 1986, our institute dealt with technological developments and the production of vaccines for the protection of troops and the population of the country against a number of dangerous infections. In 1986, this work was stopped and the technology was transferred to the USSR Ministry of Health."

Candidate of Medical Sciences B. Mikhaylov, one of the leading specialists of the sector:

"Indeed—and this has been established—the outbreak of cases of anthrax among people was caused by a previous outbreak of this infection among farm animals in many population centers of the southern part of Sverdlovsk Oblast."

"This was discussed frankly in an article by the professors N. Bezdenezhnykh and V. Nikiforov published in 1980 in ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII. By the way, for some reason it was also published later in a narrowly specialized journal only. Its authors dealt directly with an epidemiological analysis of the outbreak. They directly proved that anthrax is endemic in Sverdlovsk Oblast. There were 159 flareups of this disease registered among animals here just in the period between 1936 and 1968. They were noted in 371 population centers, in 48 of them 2 to 6 times."

"As you know, such outbreaks are fostered by the improper burial of dead animals, the incorrect maintenance of burial grounds for animal refuse, the performance of large-scale earthworks without coordination with veterinary and sanitary supervisory agencies, abrupt rises in subsoil and ground waters, and a number of climatic factors."

"I think that the presence of a large number of stable soil sources of anthrax in the territory of the oblast must be the subject of the constant attention of medical and veterinary services and that it is necessary to do systematic prophylactic work. Those desiring to learn more details about this epidemic may turn to these sources: ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII No 5, 1980; the journal CHELOVEK I ZAKON No 9, 1980; and the journal VETERINARIYA No 10, 1980."

So What Are They Doing Here?

We went through buildings and laboratories and saw much and of course did not understand everything. But it was clear that before us was a well-equipped research center with a large potential. What was the thrust of the work of the military scientists? Are not all of their efforts superfluous with the current situation in the world?

"No," answered Col. A. Kharenko. "Research is being done on a large scale in this area in Western countries. To be sure, it is also done in private and not just government laboratories. And if you look at the regulations of the armed forces of these countries, you will see that they continue to provide for measures of antibacteriological protection. So it would be unwarranted carelessness for us to stop this work in the area of antibacteriological protection on a unilateral basis."

"I emphasize that our research, being a necessary and important element in the strengthening of the country's defense capability, strictly corresponds to the defensive nature of Soviet military doctrine. Here are the basic directions of our research: the development of methods and means for the disinfection of places, military equipment, arms, and gear; development of the means to protect people against biological aerosols and rapid detection of harmful substances in the environment. There is also a completely new direction, that of the investigation of the mechanisms of the biological impairment of military equipment. Yes, there are microbes in nature that destroy metal and plastic. As you see, civilians also have an interest in the results of our research."

"And for this reason we are inviting cooperation. What can we do? We have been under cost accounting since 1989 and on a contractual basis we can provide culture media for laboratories, perform extremely complex chemical analyses for medical people, sterilize instruments and materials, carry out topical studies, certify localities, and perform ecological investigations...."

"I saw how the ecologists V. Trubnikov and V. Chukanov, for example, took an interest in automatic sampling complexes remotely controlled by radio or wire communications channels. Civilian authorities do not have them. Set them up around the city and receive regular information on the state of the air mass during the day and especially at night, when some enterprises prefer to emit their wastes into the atmosphere. Is that not a godsend?"

We still had to clarify one other important question: Is not the nearness of the 19th post to housing blocks dangerous?

It is not, as we became convinced. Only nonpathogenic microorganisms were used in research. All work with cultures of pathogenic microbes is forbidden. They do not even exist in the culture museum. All of the work is under strict control and all emissions into the atmosphere and sewage are filtered and controlled in accordance with All-Union requirements. There have been no cases exceeding the allowable concentrations of harmful substances in the air and sewage.

This is what V. Shmolyev, people's deputy of the USSR, said in this regard:

"An important result of today's visit is the very fact of openness and frankness. The curtain of excessive secrecy that effectively covered everything, thereby hindering the work and contacts, has been lifted. Today's visit by your institution casts serious doubt on the myth that we are sitting on a 'bomb' and that the 19th military post is dangerous to life...."

V. Chukanov, director of the scientific-engineering center for ecological safety, shared the plans for joint work with the military: "It is very good that the wave of conversion has also reached institutions of this kind. But it is even better that the sector management is showing initiative and is not waiting until circumstances force it into this. And scientists of the sector can already do much for the city and oblast. For example, they can perform a bacteriological analysis of the water."

"Here we saw a good analytical basis for a high scientific level and outstanding professionalism of the sector staff members. We were indeed here for the first time but our contacts began last year. Now the plans for the work of the center and Ural Department of the USSR Academy of Sciences include the theme 'Bacteriological monitoring (continuous control and issue of recommendations on the elimination of ecological contamination) at industrial centers and zones' jointly with the sector. For the time being, this will be Sverdlovsk, Pervouralsk, and Revda."

"In the first stage, we are proposing the development of a methodology for the taking of samples in the water, air, and soil for the isolation of medically significant and ecologically dangerous bacteria and methods for the detection of microorganisms in samples and their identification by type...."

Thus, the military scientists are inviting cooperation, as required by conversion and the very spirit of our time.

Yeltsin, KGB Roles in Investigation

91WP0150B Moscow KURANTY in Russian 1 Nov 90
p unknown

[Article by Boris Yarkov: "The Disease Was in the Shoulder Straps"]

[Text] At the beginning of April 1979, several patients came to one of the hospitals of Sverdlovsk with the same

diagnosis: acute inflammation of the lungs. They were not able to save anyone. The autopsy revealed a new diagnosis: anthrax, and a very rare form of it—in the lungs. This was the beginning of an epidemic of anthrax in Sverdlovsk that cost more than 80 human lives, according to official data. But this fact remains cloaked in secrecy.

From the start of the epidemic, sanitary services pursued an active propaganda: "Wash your hands before eating." They inspected all of the livestock in the oblast. In the markets, people were forbidden to trade not only in uninspected meat but also in fruits and vegetables. Violators were fined. Frightened citizens stopped buying any meat but the number of sick did not decline.

Just a month after the tragedy, meager information reached the press to the effect that the reason for the epidemic was the use as food of the meat of sick animals bought from private persons. But the source of the infection of the animals, according to specialists, was one of the burial grounds for animal refuse in a suburb of Sverdlovsk.

Long before the appearance of such publications, there were ominous rumors circulating around the city about the release of bacteriological substances at the military post located on the outskirts of Sverdlovsk. They talked about some secret commissions that were looking into the reasons for the outbreak of the epidemic. Not only the official press but also party leaders of the oblast kept silent. One of them was B. Yeltsin, who at that time was first secretary of the CPSU Obkom. Only at the beginning of this year, when he met with his electors in Sverdlovsk, did Yeltsin lift the curtain of secrecy a little:

"I knew about the existence at this post of a closed research center but I had no information about what it was doing specifically, although I could guess," said Boris Nikolayevich. "After the beginning of the epidemic, I appealed to the Ministry of Defense with a personal request that it look into the involvement of this center in what happened and that it remove research laboratories endangering the lives of hundreds of thousands of citizens of Sverdlovsk beyond the borders of the city. A large group of military specialists and KGB people arrived. They did not inform me personally of the results of their work, although with the passage of time some of the laboratories were removed beyond the boundaries of the military post."

But the authorities are continuing to adhere to the old official versions. The KGB people affirmed that a large group of intelligence people from Moscow and Sverdlovsk did indeed work there during those months. They supposedly were helping to look into the reasons for what happened. It was not possible to determine what specifically this help involved. Many questions remain open.

Although logically the epidemic should have covered the entire city of some one million inhabitants, residents of only one rayon adjacent to the military post were victims

of anthrax. It was precisely here where they carried out mass vaccination of residents and treated the soil and facades of dwellings. So other rayons of the city did not cause any particular concern of specialists.

But the most obscure story is that of the illnesses. Today not a single case remains in the records of those hospitals where patients were treated for anthrax. According to the official version, all case histories of the illness were utilized by specialists in scientific work. But no one was able to say to whom personally they were given and whether there was an authorization for this.

The facts presented confirm the truth of the words stated in the pages of the American scientific journal *IN THE WORLD OF SCIENCE*. In Bernstein's article "Birth of the Program to Develop Bacteriological Weapons in the United States" in the eighth issue for 1987, it is stated, in particular: "In the United States in the early 1980's, people began to surmise that the Soviet Union was actively pursuing a program to develop bacteriological weapons. This caused the United States to expand its own program. The suspicions with respect to the USSR were dictated in part by cases of anthrax in Sverdlovsk in 1979 possibly caused by a leak of pathogens of this illness from a laboratory in which, according to U.S. assertions, bacteriological weapons were being developed."

More on Alleged Sverdlovsk Bacteriological Accident

92WN0012A Moscow *LITERATURNAYA GAZETA*
in Russian No 39, 2 Oct 91 p 6

[Article by Natalya Zenova: "Military Secret. Part II"]

[Text] A year ago, our newspaper published my article, "Military Secret" (*LITERATURNAYA GAZETA* No 34, 1990), on an outbreak of malignant anthrax in Sverdlovsk in April 1979. Having investigated the circumstances of the incident, I concluded that the tragedy was not caused by people's consumption of infected meat in their food, as the official version reads, but by the release of a bacteriological weapon which occurred in the so-called 19th military cantonment.

The article debated the arguments of professors I. Bzdenezhny and V. Nikiforov, cited in the May 1980 issue of the *ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOLOGII*, the only publication on this topic in the Soviet scientific press. I showed that there were by no means "isolated illnesses" in Sverdlovsk—the dead alone numbered about 70 people; that the infection penetrated by way of the respiratory tract, therefore the disease manifested predominately in the lungs; and that there is a reason the disease infected basically the residents of Chkalovskiy Rayon, living south of the military cantonment—at that time the winds blew from precisely that direction. The article

ended with an appeal: To create a parliamentary commission and conduct an investigation of the Sverdlovsk accident.

No official reaction whatsoever followed. On this subject, the "upper echelons" kept the same graveyard silence that lies in sector 15 of the Eastern Cemetery, where victims of epidemics are buried according to special rules and where to this day people walk warily.... After all, right after LITERATURNAYA GAZETA (LG), other publications also came out, meetings were held in Sverdlovsk, there were appeals to deputies....

Then I decided to continue my own investigation. The impetus was a refutation of sorts which came to the editors from a person famous in the United States: M. Mezelson, professor of biochemistry and molecular biology at Harvard University, who was an independent consultant for an interdepartmental work group in 1980, created by the U.S. government to investigate the epidemic in Siberia. M. Mezelson insisted on the natural nature of the outbreak and wrote about the competence of the Soviet scientists (on his invitation, it seems, they visited America). Xeroxed copies of published materials related to this trip were attached to this letter: Thus, for the first time I was able to familiarize myself with our side's complete arguments.

Moreover, my volunteer assistant readers (thanks, above all, to Muscovite V. Zagranichny) sent a whole selection of publications in the foreign press on the subject of the Sverdlovsk accident.

January 1980. The first report on the incident with reference to an anonymous source. It speaks of an explosion at a military enterprise and about a possible violation of the convention on biological weapons, ratified in 1975.

March 1980. The U.S. officially demands explanations from the USSR: The USSR answers that a natural outbreak of malignant anthrax had occurred. The U.S. government questions this and claims that it has evidence of a release of bacteria into the air as a consequence of the accident.

April 1986. Through the general secretary of the Pugwash Movement, Dr. Mezelson makes an attempt to organize a scientific discussion of the nature of the outbreak.

August 1986. Mezelson meets in Moscow with former USSR Deputy Minister of Health Care P. Burgasov, RSFSR chief epidemiologist I. Bezdenezhny, chief pathologist V. Nikiforov, and his assistant O. Yampolskaya, all of whom were in Sverdlovsk at the time of the outbreak.

April 1988. Burgasov, Nikiforov, and V. Sergiyev, director of the Institute of Medical Parasitology and Tropical Medicine, visit the United States, where they give official reports and participate in scientific discussions.

The press reported on this visit extensively, but the journal FAS PUBLIC INTEREST REPORT covered it in particular detail, being the organ of the Federation of American Scientists (FAS), which has been struggling for a halt to the nuclear arms race for many decades. A significant part of the September 1988 issue was devoted to the Soviet scientists' reports. They named (finally!) the number of dead—64 people—and the number of those infected—96 (mass vaccination of the population began immediately after establishment of the diagnosis). The general conclusion: The epidemic infected domestic cattle, people were infected by an intestinal form of the plague as a result of consuming the meat, sold in violation of sanitation rules, in their food.

So, on what new arguments is this conclusion based?

A Diagnosis Vanishes

So, all 64 people, it is claimed, died of an intestinal form of malignant anthrax. Its symptoms: "An elevation of temperature up to 41 degrees Celsius, chills, weakness, and headaches were noted in the patients. In the course of several hours, acute pain in the stomach, vomiting, and diarrhea appeared...." (from the journal FAS PUBLIC INTEREST REPORT).

I already quoted a detailed description of the course of the disease, which doctors observed in the hospital. Yes, there were chills, yes, there was a high temperature, but not one doctor recalled pains in the stomach, the more so acute. They all, to a man, described a picture of a very severe pneumonia which led to a lethal outcome in literally in a matter of hours. Not even artificial ventilation of the lungs helped. It is no accident that the first death certificates are marked "bacterial pneumonia."

However, perhaps the stomach and intestinal symptoms were observed at home, and the doctors in the hospital simply did not manage to ascertain them in time?

A year ago, I had few addresses for the deceased. Now, it is a different matter. So here I am, walking from home to home, troubling people's memories....

The widow of M.F. Markov: "When we called the doctor, she said: ORZ. She prescribed some medicine. My husband began to take it, but he grew worse right before our eyes. I thought: maybe it is pneumonia? I began to rub him and keep him warm, but nothing was helping. I ran for an ambulance, and they immediately said: It is pneumonia, possibly lobar, and took him to hospital No. 20.

"No, he did not complain about his stomach. There was nothing like that either at first, or later.... Early in the morning I ran to the hospital to see him, but he had already died. The doctor told me that he would have died all the same: His lungs had become like jellied meat."

The son and daughter-in-law of A.P. Komina: "At first Mama grew stronger and got up on her feet—first she was better, then worse.... She even went to the doctor

herself, and they gave her a diagnosis of 'ORZ.' But later she took to her bed. The 'emergency' doctor said, 'It looks like pneumonia.' When we called a second 'emergency' doctor, the doctor even accused us: What kind of relatives are you, to drive your mother to such a state, she has very serious pneumonia. At the hospital, they told us: 'Prepare yourselves, your mother will not last long.'

The son of A.A. Komelskiy: "In those days, Father worked a great deal in the garden plot by our home. He was glazing the greenhouse. One day in the evening he said: 'I have taken ill with something, obviously I have caught a cold....' And everything was just like with a cold, only something was hindering his breathing and his temperature kept going up. Later it got quite bad, and father ordered us: 'Call an ambulance. I am afraid it might be pneumonia.' The ambulance took him away, and the next day he died."

The widow of A.N. Syskov: "My husband came home from work and asked: 'Get me the thermometer.' We measured—his temperature was about 40. And he was breathing somewhat strangely, as though panting, as though gasping for breath—that sort of breathing. No, he had no diarrhea at all, and his stomach did not hurt. He had always been so healthy! I called an ambulance, and when the doctors arrived, he was tossing in bed—that is how bad it was for him. He died in the hospital the next day."

As soon as it was established that malignant anthrax was raging in the city, the diagnosis of "bacterial pneumonia" disappeared from the death certificates. As I was told at one home, much grief was visited on the first ones: People came to them afterwards and persistently asked them to give back the death certificate....

However, let us return to the symptoms. One way or another, of course, this is still not proof. The results of post-mortem examination and, of course, bacteriological analysis will give a reliable diagnosis. Omitting the details, let me note one thing: The emissaries of Soviet science spoke in the United States only about infections of the intestines. Their reports were supported by a series of color photographs taken, it was indicated, by V. Nikiforov during the post-mortem examinations. The conclusion: "There was no evidence whatsoever of cases of a lung form of malignant anthrax."

But here is what I was told by the highly experienced Sverdlovsk pathologist F. Abramova, who was present at most of the post-mortems (this is how, before the arrival of the "luminaries" and before the results of bacterial analysis, she first defined the plague): "All of the deceased had several infected systems, in some one system predominated, but the respiratory system was infected in all of them (the emphasis is mine—N.Z.). This attests to the fact that introduction occurred, evidently, through the respiratory tract."

I met with V. Sergiyev and O. Yampolskaya, V. Nikiforov's former assistant (alas, he himself, as well as I,

Bezdenezhnyy, are no longer alive). They threw up their hands: Nobody knows whether the photographs demonstrated in America were kept or where to look for them.

However, life does not erase all traces. It turns out, not only V. Nikiforov had made photographs! L. Grinberg, who had worked in the pathology and anatomy group at that time, had also taken some. His photographs escaped destruction: True, not all of them. However, even those that survived intact, as L. Grinberg says, "give a different picture," than the one that was presented in the United States.

Where the Wind Blows From

"At first, it seemed that the victims of the disease had nothing in common, but it later became apparent that they all had to do with illegally produced meat... The meat came from small private producers..." (from FAS PUBLIC INTEREST REPORT).

Very well, let us assume that all 64 of the deceased ate meat, bought from private producers. However, a natural question immediately arises: If these people ate the meat at home, how come there were no cases of infection of other family members? And why did basically men die? The explanation that was given across the ocean is as follows: In Russian families meat is saved—according to "custom"—for the heads of families. This explanation is not only unscientific, it is simply false. In not one of the houses that I visited was this "custom" followed: They all ate from the same "pot."

The largest center of infection within Chkalovskiy Rayon was the ceramics plant. Almost a third of all infections are among its share. Its workers also live predominantly in the surrounding homes. Why did the plague rage with particular force precisely here? It turns out, here is why:

"In April, the ceramics factory received several beef carcasses and the meat was put up for sale. At least one of the carcasses was infected...."

Who ascertained this and when? Where are the documents, who are the witnesses, and were the guilty parties found?

There is no evidence, no witnesses, no criminals. To make up for it, there are the first and last names of people, including the "first" persons, who declared entirely responsibly that the plant never received uninspected meat and never traded in it.

"Really, if they had found something, even the slightest hint that it was our fault, would I be sitting here talking to you now?" This rhetorical question of G. Khusnutdinova's, then and now director of the plant cafeteria, you will agree, makes up for the many missing forms and documents.

Yet there is still evidence: "At that time, the KGB was working here day and night. However, as you can see, I am alive and well, and not a single hair has fallen from

my head." These are the words of the chief of the mixed fodder shop at the Aramil Grain Products Combine, B. Martyanov.

The trip to this combine was especially important for me. The accuracy of the answer offered in the United States to the main question, "How did the cattle of the 'small private producers' become infected?" depended on it. I recall that in the only article by Nikiforov and Bezdenezhnyy, published in the Soviet press, it was ambiguously stated: "The infection of the animals occurred, most likely, through the fodder."

Understandably, it was impossible to go abroad with such a "conclusion." So a clear answer was given: "The source of the epizootic was infected bone meal, used as a fodder additive. It arrived with a 29-ton shipment of bone meal produced at a plant in Aramil, a town located 15 km south of Sverdlovsk... This meal consists of bones and other wastes from meat slaughter-houses, mixed with grain. The mixture is placed in an autoclave for the purpose of deactivating the spores of malignant anthrax and other pathogenic microbes. The production process at the Aramil plant violated established technical rules."

Now, I continue my interview with B. Martyanov:

"In general we do not produce and have never produced meat and bone meal. We receive it in finished form from various suppliers, and all shipments are accompanied by certificates of quality. There is no enterprise in the rayon of Aramil that makes this meal. We do not and have never had any autoclaves whatsoever or other such equipment. When the accident happened in Sverdlovsk, we checked the entire technological chain, all the documentation, all our suppliers and buyers. And finally, we never sold our output to the private sector. In general, we are not party to any of this."

What the Devil Are They Doing Over There?

Official representatives of the U.S. government found that the "explanation leaves many key questions open." I also have a number of questions, to which I was unable to receive an answer:

1. Why immediately after the tragedy happened were all the disease histories, all the post-mortem records, and in general all the documents in all the institutions "involved" confiscated? Including things that at first glance seem innocent, such as lists of families who received aid at the "Red Cross" line?

2. Why was the investigation of the mass deaths, started by the Chkalovskiy Rayon Prosecutor's Office, suddenly cut short, and the case transferred to a different, by no means civil, authority?

3. Why was massive decontamination work carried out in Chkalovskiy Rayon: They removed layers of soil, quickly laid asphalt, and washed the walls and roofs of buildings (which, incidentally, was denied during the "scientific tour," but is described in detail by witnesses)?

4. How come the widely broadcast promises, already given in America, on the forthcoming publication of a "great quantity of pathological and histological data relating to the outbreak" were not fulfilled?

And finally, about the situation surrounding the 19th military cantonment: As already stated, the military continues to deny its involvement in what happened, beginning with those working there directly and ending with former Minister of Defense Yazov. The military especially insists that the production of vaccine preparations "for protection of the troops and population" in the 19th cantonment was halted. In response, let me merely repeat the reply of Mr. Crocker, a U.S. State Department official, quoted by the American press: If this military project is no secret, then "how come they will not let us visit it?" And if it is secret, then "what the devil are they doing over there?"

It is not easy for me to write all of this. I am not one of those people, who easily suffers the failures and blunders of one's native land. However, having said "a," one must say "b." It is my duty, both to a country, which has concluded a convention prohibiting the production of bacteriological weapons, as well as to the memory of simple people, of Anna Petrovna Komina, Mikhail Fedorovich Markov, Aleksey Nikolayevich Syskov, and many, many others, whose lives came abruptly to an end before their time and strangely. To those close to them, who were "compensated" for the loss of their husbands, sons, and mothers with a paltry 50 rubles, and not all even received this. And to the distant friends and readers of LG: Possibly, they remember that LG, alas, did not play the best role, attempting to "stifle" rumors in the world about what happened in Sverdlovsk.

"A situation, in which certain state institutions within the country may violate the international obligations accepted by the country, is not ruled out. A situation in which the state itself violates them in strictest secrecy is not ruled out," writes A. Yablokov, USSR people's deputy, deputy chairman of the Committee on Matters of Ecology. Incidentally, in general he does not consider even international monitoring to be a panacea: A test-tube of deadly bacteria can always be hidden from the eyes of inspectors. The main solution, in A. Yablokov's opinion, is "at the level of law, to recognize actions, related to the development, storage, and use of bacteriological weapons as a CRIMINAL ACT. The majority of developers—the military, scientists, and engineers—do not want to be potential criminals, no matter with what secrecy and high salaries such production may be protected."

These considerations seem extraordinarily topical to me. Nonetheless, I think we need yet another act, which deprives antihuman development work of its main concealment, the cover of "secrecy." Drafts of a law on state secrecy, part of which is military secrecy, have been traveling somewhere along the corridors of power for a long time already. Although there has not yet been a public discussion of the law, it seems that jurists are

united in the opinion that actions which entail danger to people's lives and well-being cannot be included in such "secrecy."

"The right to health is one of man's most important rights and, it goes without saying, it is impossible to place any, even the 'highest' state considerations above it." Let this opinion of S.S. Alekseyev's, chairman of the Committee for Constitutional Inspection, be the last point in my article.

However, there are many marks of omission before official investigations and conclusions.

Defense Minister Favors Retaining Nuclear Arms

LD1809013391 Moscow Central Television *Vostok Program and Orbita Networks* in Russian 1530 GMT 17 Sep 91

[Video report by correspondent L. Ilchenko, including recorded interview with Major General Konstantin Petrovich Morozov, Ukrainian defense minister, place and date not given; from the "TV Inform" newscast presented by Pavel Kasparov]

[Text] Our program today presents the minister of the Armed Forces of the Ukraine, Aviation Major General Konstantin Morozov.

[Ilchenko] The Ministry does not as yet have an office, while the minister of the Armed Forces has not been released from his duties as Air Force commander in the Ukraine. Konstantin Petrovich Morozov is 46 years old. He hails from Lugansk. After he graduated from school, he went to the Kharkov Air Force Academy. Subsequently, at the controls of a military fighter plane, he spent more than 2,000 hours in the air. The minister graduated from the Gagarin Air Force Academy and the General Staff Academy. In literature, he prefers the classics and modern publicistic works. Akhmatova and Yesenin are his favorite poets. As for his family, his wife is a historian, and his daughter an engineer. All of them live together in a regular city apartment. They have neither a dacha nor a car of their own.... How do you see the Ukrainian Armed Forces?

[Morozov] I see the Ukrainian Armed Forces as being first and foremost Independent, as befits any independent state. Recruitment would be irrespective of nationality, and would be based on the grouping currently deployed on the republican territory. The Ukrainian Armed Forces could be formed of two components: general security forces, which may include the strategic forces, the nuclear component included; and the Ukraine's own Armed Forces, on the basis of the forces currently stationed here.

[Ilchenko] Tell me, do you favor nuclear arms remaining on our territory, or not?

[Morozov] Yes, they ought to remain, but the command of all nuclear forces ought to remain under one roof, in

the joint coalition command, and this ought to be entrusted to one command body.

Republic Officials Comment on Nuclear Weapons

LD0310223991 Moscow Russian Television Network in Russian 1800 GMT 3 Oct 91

[Report by correspondent Fuad Ogly; from the "Vesti" newscast]

[Text] An issue which was not raised at the meeting in Alma-Ata but in which everyone is interested is the fate of the nuclear installations located in the territory of the Ukraine, Belorussia, and Kazakhstan.

[Belorussian Prime Minister Vyacheslav Kebich] We do not want to possess nuclear weapons nor bear the cross of anxiety borne by those countries possessing such weapons. Let us be honest, however, and admit that the NATO alliance exists and that it does have armed forces. This means that the first defensive shield in the path of the Western countries is Belorussia and the Ukraine.

[V. Grinev, deputy chairman of the Ukrainian Supreme Soviet] I think that the nuclear weapons should remain at their launching positions. This is a point of principle, and there is no need, so to speak.... [changes thought] Well, I did not very much like Boris Nikolayevich Yeltsin's statement about Russia appropriating all the weapons. It has created tension. [passage omitted including indistinct portion]

Lithuania Unsure on Nuclear Weapon Deployment

LD3009130691 Vilnius Radio Vilnius International Service in Lithuanian 0200 GMT 29 Sep 91

[By correspondent Audrius Matonis]

[Excerpt] Lithuanian Supreme Council Chairman Vytautas Landsbergis reported on his visit to Copenhagen, the capital of Denmark, at a Supreme Council news conference yesterday [28 September]. He also spoke about visiting Riga on the way home, which lasted several hours. [passage omitted]

"First of all, however, Lithuania must know how many and what kind of Soviet troops are deployed here. This is necessary both for ensuring people's safety and for carrying out world commitments. It is necessary to know if it is true that nuclear weapons are not deployed in Lithuania. The same can be said about chemical, bacteriological, or any other type of weapons. Besides, it may happen that to carry out an efficient and undelayed control of such weapons, specialists or technical equipment will not be available here in Lithuania. In this case, special help from other countries might be needed." [passage omitted]

Ukraine Presidential Contenders on Arms Issue

*LD1909155191 Kiev Radio Kiev Network in Ukrainian
2200 GMT 18 Sep 91*

[Text] The contenders for the post of president, Vyacheslav Chornovil and Levko Lukyanenko, expressed totally opposite views as to the fate of nuclear potential deployed in Ukraine. The latter believes that there is no need to hand nuclear weapons over to Russia since they are the property of Ukraine and are of high value. Nuclear warheads contain uranium, a nuclear fuel, which can be extracted and given to nuclear plants of Ukraine.

Vyacheslav Chornovil noted that nuclear potential should be eliminated on the basis of former accords, and with the participation of all other nuclear powers.

The view of Stanislav Hurenko, former first secretary of the Communist Party of Ukraine Central Committee and a Ukraine people's deputy, boils down to the need to insure reliable control over the use of nuclear weapons. Apart from that, the weapons should stay in the places they have been kept in till now, he said.

Ukraine Defense Minister on Nuclear Weapons

*LD0310144191 Moscow TASS in English 1411 GMT
3 Oct 91*

[By UKRINFORM-TASS correspondent Sergey Balykov]

[Excerpt] Kiev October 3 TASS—"The Ukraine needs an army as a guarantor of democracy and independence," Air Force Major General K. Morozov, Ukrainian defence minister, said in an interview with the NARODNAYA ARMIA newspaper. Troops deployed now on Ukrainian territory will be a basis for its creation. These include three military districts, the Black Sea fleet and some individual units. They all will undergo a radical reform. This work will be carried out jointly with the General Staff, in accordance with the act on state independence of the Ukraine and a resolution of the republican parliament about military units deployed on its territory.

The Ukrainian armed forces will never have nuclear weapons. Morozov stressed. The strategic forces with a nuclear component, deployed on its territory, are already being set apart. They should be managed by a single control body with the participation of the Ukraine. The future of the nuclear weapons on Ukrainian territory will be decided in line with the course, proclaimed by the declaration on state sovereignty. It says that the Ukraine intends to become a neutral state, not to join military blocs and follow three non-nuclear principles through the stage-by-stage reduction of nuclear weapons in accordance with the existing treaty and further agreements with sovereign republics. [passage omitted]

Ukraine Favors Central Control of Nuclear Weapons

*OW2609032591 Beijing XINHUA in English
0143 GMT 26 Sep 91*

[Text] Washington, September 25 (XINHUA)—A senior Ukraine official said here today that the Soviet nuclear weapons should be under control of the central government, but he opposed moving nuclear weapons from one republic to another.

Leonid Kravchuk, chairman of the Ukraine Supreme Soviet, made those remarks after meeting with U.S. President George Bush.

"Our position is that Ukraine should have the status of a non-nuclear state," said Kravchuk, whose republic has declared independence from Moscow. He added that Ukraine would abide by all the nuclear treaties signed between the Soviet Union and foreign countries.

He said that "Ukraine is in favor of central control over nuclear weapons, and we think it impossible that on the map of the world there should appear new nuclear states which might destabilize the civilization of the world. Ukraine is against transferring nuclear weapons from one republic to another."

Kravchuk, who also discussed with Bush possible Western assistance to the Soviet republics, said that Ukraine does not need food aid from outside. "what we really want to have are new technologies to produce this food in the republic."

Artillery Chief on Control of Nuclear Weapons

*PM2509165591 Moscow IZVESTIYA in Russian
23 Sep 91 Union Edition p 2*

[Report by V. Litovkin: "Who Holds the Keys to the Nuclear Button"; final two paragraphs are IZVESTIYA postscript]

[Text] It is a month today since USSR President M. Gorbachev came back to perform his duties. The 72 hours during which he was deprived of the "nuclear attache cases" and the chance of influencing the decision to use nuclear weapons have not been forgotten. And although high-ranking military men on both sides of the ocean have said on several occasions that there was no loss of control over the strategic nuclear forces, the alarm of those days has not passed.

What guarantee is there that this will not be repeated? Particularly as regards tactical nuclear weapons that may fall into the hands of extremist forces.

Commenting on French Defense Minister P. Joxe's stay in the USSR, Paris' LE MONDE noted that the West wants to put an end to Soviet tactical nuclear weapons as rapidly as possible. Scattered across the Union in the hands of unreliable military leaders, they may become the object of political blackmail at such a stormy period.

something that is fraught with unpredictable consequences. Nor is it reassuring that nuclear weapons will be moved to RSFSR [Russian Soviet Federated Socialist Republic] territory.

In the opinion of France's *LA CROIX*, in the eyes of the West and its military specialists, the Soviet military threat is more real today than ever.

"There is no threat of unauthorized use of tactical nuclear weapons in our country," Marshal of Artillery V. Mikhalkin, chief of the Ground Forces Missile and Artillery Troops, said in a conversation with an *IZVESTIYA* correspondent. "Like strategic weapons they can only be brought into operation with the authorization of the country's top leadership."

What are tactical nuclear weapons? Special warheads for the "Tochka" missile complex in the arsenal of a motorized rifle or tank division's Individual missile battalion, special ammunition for heavy long-range artillery, whose units form part of the Supreme High Command reserve.

Marshal of Artillery Mikhalkin claims that nuclear munitions, including warheads, are stored separately from their means of use and delivery systems. That is, some units have weapons and guns while others have arsenals and dumps. They even come under the jurisdiction of different bosses. The safety system for these weapons, formidable in terms of their destructive might, is structured in such a way as to ensure that no one can use them without the knowledge of the country's top leadership.

"In order to replace a missile's conventional warhead with a special warhead," Vladimir Mikhaylovich said, "you have to dial a special figure or code both on the launcher and on the warhead. Even I don't know this code," the marshal said.

He also ruled out the possibility of these warheads being seized by extremists, much less by maintenance personnel.

"First, our people work there in groups," Mikhalkin explained, "groups of several proven, highly reliable people. Second, and I have already said this, the system's technical design does not even allow a specialist who does not have the key to the code to operate it."

There are no reasons to doubt the artillery marshal's sincerity or that of other professionals in this sphere who told me virtually the same thing. At the most diverse levels.

But this idea occurs to me: Words today are not the most convincing argument to reassure public opinion. Other steps are needed. Today we are not only worried by the possibility of unauthorized use of tactical nuclear weapons but also by access to them. Who, what forces, have their hand on the nuclear button?

We still do not know the clear, unequivocal answer. One may assume that previously it was members of the USSR

Defense Council, headed by the president, although a complete list of this council's members was never published. Who is a member of it now? Does the membership of the Defense Council coincide with the membership of the State Council? And if not, who is and is not a member of it? What role do the "nuclear" and "non-nuclear" republics and their leaders play in it?

All these are by no means idle questions and they are not being asked out of idle curiosity. If we are building a civilized rule-of-law state, we should have no secrets that alarm not only the country but also the world.

IZVESTIYA's correspondent asked the questions raised in this article at a press conference given by USSR Defense Minister Ye. Shaposhnikov on the evening of 20 September at the USSR Foreign Ministry Press Center.

The marshal of aviation said that the USSR Defense Council does not exist now, but he thinks that it should be set up and must include representatives of those republics on whose territory nuclear weapons are stationed.

Forces Commander Denies Presence of Nuclear Weapons

LD3009231191 Moscow TASS in English 1750 GMT 30 Sep 91

[By TASS correspondent Igor Osinskiy]

[Text] Berlin September 30 TASS—Colonel-General Matvey Burlakov, the commander-in-chief of the Soviet Western Group of Forces, has refuted last week's report by the *SUEDDEUTSCHE ZEITUNG* newspaper that there are Soviet nuclear weapons on East German territory.

The newspaper referred to the information it allegedly received from Norbert Gansel, the chairman of the German Social Democratic Party parliamentary faction.

"I invite Mr. Gansel or his confidential person to visit any object of the Soviet western group of forces they like, to make sure that there are no Soviet nuclear weapons on territory of the former German Democratic Republic," says statement by General Burlakov, circulated here today.

The command of the Soviet Western Group of Forces expresses the hope that from now on the leadership of the Social Democratic Party of Germany will use verified and objective information, the statement notes.

Defense Minister on Armed Forces Reform

Reducing Strategic Offensive Armaments

LD2009184691 Moscow TASS in English 1613 GMT 20 Sep 91

[By TASS diplomatic correspondents Oleg Moskovskiy, Sergey Nikishov, and Leonid Timofeyev]

[Excerpts] Moscow September 20 TASS—Banning party from the Army, reforming the Soviet Armed Forces and tackling the personnel issue were raised at a news conference in Moscow today by Soviet Defence Minister Yevgeniy Shaposhnikov. [passage omitted]

"We are opposed to nuclear testing and call on all other nuclear powers to adopt a similar stand," Shaposhnikov said.

On prospects of testing nuclear weapons in Novaya Zemlya, Shaposhnikov said that "this will depend on the other side."

In addition to that, Shaposhnikov said, the USSR is ready for other steps on reducing strategic offensive armaments. In his view, it is time to start negotiations on the elimination of tactical nuclear weapons in Europe, which would reduce the risk of the unsanctioned use of nuclear systems. [passage omitted]

Journalists wanted to know if the USSR maintained nuclear weapons on German territory. Shaposhnikov said that not a single Soviet-made nuclear or chemical warhead remained on German territory. The same applies to the Baltics.

Commenting on the issue of the Soviet troops withdrawal from the Baltic states, Shaposhnikov expressed the view that the pull-out could start on the basis of inter-state agreements after 1994. [passage omitted]

On nuclear arms control, Shaposhnikov remarked that "irrespective of the republics' line of conduct, it should be controlled by the centre, but the republic presidents should know what weapons are located on their territory and how they are being used."

Shaposhnikov favoured establishing a defence council that would include "representatives of the republics on the territory of which there are nuclear weapons."

The defence minister said that he "does not intend to allow use of the Army for the solution of domestic problems, including inter-ethnic conflicts." [passage omitted]

Nuclear Arms Reduction

OW2209220791 Moscow INTERFAX in English
2118 GMT 22 Sep 91

[Transmitted via KYODO]

[Text] The Soviet defense minister, Mr Yevgeniy Shaposhnikov, has said that the Soviet Union is prepared to continue to reduce its strategic nuclear armaments and to stop nuclear tests altogether on a "reciprocal basis". He said also the Soviet Army personnel will be reduced to 3 million people during the formation of a new union of sovereign states.

Mr Shaposhnikov stressed that "the threat of possible local conflicts" continues to exist. "As long as it exists", he said, "we have to keep our defense capability at an appropriate level".

Nuclear Arms in New Soviet Society Examined

Republics Share

PM2009134491 Moscow NEW TIMES in English
No 33, 20-26 Aug 91 pp 8-10

[Article by Konstantin Pleshakov: "To Avert a Real or Imaginary Danger"]

[Excerpt] [passage omitted]

Republics Have the Right to Their Share

Life is not so easy or simple, however. The USSR is disintegrating. Nobody will see Lithuania, Latvia, and Estonia within it any longer. I have a strong suspicion that Armenia, Georgia, Moldova, and, perhaps Azerbaijan will also secede. What will become of nuclear weapons then? This problem is more complicated than that of nuclear testing.

Strictly speaking, each former Union Republic has the right to its share of nuclear weapons, tanks, aircraft, and naval forces. At the same time, the scattering of the nuclear potential and even the conventional military potential is fraught with dangers which can easily be imagined. True, some of the republics, showing good will and common sense, relinquish their share of nuclear weapons. But why should all republics give the entire military potential, including nuclear, to the USSR or to the Republic of Russia to some extent, which will be its successor in the case of complete disintegration? Therefore, notwithstanding the desire and, perhaps, the expediency of isolating themselves in national areas, the USSR should remain a geopolitical and military reality, even if it loses all other functions. The last Premier in the history of the USSR, no matter how stout the man might be, will be given his life-size bust of gold, to encourage him to leave his post. The Council of Ministers will sink into oblivion. The all-Union Parliament will become exactly what it has been persistently trying to become, that is, a harmless talking-shop. All practical matters will be done in the Republics.

Even if all this happens, the USSR will remain a military bloc. Maybe it will lose the Baltic Republics, maybe not, if the problem is tackled in a civilized way. It will be a military bloc with a joint command and the Republics' right of veto in regard to military operations, in general, and the use of nuclear weapons, specifically.

If we do not think about all this in earnest, in the near future we may be confronted with dilemmas which will make current discussions about nuclear testing seem like small talk.

Let us not order generals to turn into sea-gulls. We will need generals for years to come. We shall not be able to do without them. Who knows, maybe just now a period of a real, not imaginary, threat to our security begins. Of course, it is not the reason for maintaining the same huge army and taking from the dying country its last crumbs to be spent on missiles. But nor is it a reason for saying a farewell to arms. Our task today is, together with our generals, thoroughly to assess the situation when there is no threat from the West and when we should not forget about our Eurasian border.

'Who Is Closest to the Nuclear Button'

PM2109100591 Moscow *PRAVDA* in Russian
17 Sep 91 Single Edition p 1

[Article by A. Pokrovskiy under "Fact and Commentary" rubric: "Our Worrying Command Post. Who Is Closest to the Nuclear Button?"]

[Text] The sovereignty confusion over the statements from various republics about nuclear weapons is incredibly worrying. Some dream of becoming nuclear-free zones. That would be a good idea—but what will we do with existing installations? "Put them on our territory," others reply. Others have a different verdict: No military formations can be redeployed from a republic's territory or military hardware removed without the agreement of the republic's cabinet of ministers.

Let's take a closer look at what is in question. I once visited a Strategic Rocket Forces command post located, incidentally, outside of Russia. And whenever I hear the abstract arguments used by various politicians, I recall that special, rather otherworldly place. With its own power supply (with one or even two backup units), its own air circulating through a special purification system, its own water pumped from artesian wells, and its own sterile, unearthly silence. In order not to break that silence, details come on duty in soft shoes, but even those gentle steps are muffled by the thick carpeting around the consoles.

There is also a particular psychological mood. It was not so long ago that I visited a detail, but I literally felt in my bones the tension reigning at the command post—even though it seems that all there is to do is monitor the instruments. I could see how drawn the guys were when they came off duty. But the main thing is that all the features of this command-post world are interrelated. Breaking with one of them would mean disrupting the normal course of duty—and that, God forbid, could result in a storm which would deafen the globe forever. No, of course, strict measures are in place to insure against any accidents. Insofar as I understood it, a coded order has to be received before anyone touches the "button." Then both members of the detail must simultaneously open safes with sealed envelopes. Then...clearly, I cannot tell you everything.

I would only add that the command post controls more than just one missile or one warhead. It controls several

so-called individual launch areas located around the command post. That night we visited one of them. We passed through the barbed-wire fence and an armed guard to a clear area comprising a thick concrete slab. The missile was underneath. But at zero hour a special charge moves the slab and the missile can start its terrible journey...

"Do you know where your missiles are targeted?" I asked the detail.

"Of course not," they said. "That is known at the very highest level. We only know that if one of the silos needs any routine maintenance we have to inform headquarters ahead of time—clearly, the target in question has to be covered by another missile."

It is hard writing about all this. It is even hard thinking that necessity or evil intent may one day move those sinister concrete slabs out of position. But as long as there are nuclear weapons, we should not rule out that possibility. The only radical solution is to completely and totally ban such weapons. But for the time being we must move carefully toward that situation along the winding path of intricate international relations and domestic confusion. We can therefore understand why both M. Gorbachev and B. Yeltsin were keen to assure their foreign partners that the nuclear buttons are under central control. Admittedly without specifying how this would work in practice in the light of the republics' ambitions. The republics have already issued statements about wanting dual control....

That is why I was particularly interested in reading the TASS report about the conference, hosted by Soviet Defense Minister Ye. Shaposhnikov, of high-ranking leaders from all 15 former union republics. Their decision is hopeful—strategic nuclear forces should remain in unified hands, and the collective security system should be preserved. One is admittedly confused by a rather unclear point in these decisions: The sovereign republics are the legal successors to all the international treaties and agreements signed by the Union, including those on arms reduction. And one is also quite chary of the opinion expressed by T. Yundzis, chairman of the Latvian Parliamentary Commission for Defense and Internal Affairs—and again carried by TASS—that Shaposhnikov was not seriously prepared to talk with Baltic representatives.

I do not consider myself sufficiently competent to make specific proposals in this major and terrible area. I am merely sharing my views with readers out of my duty as a journalist. Perhaps more extensive information about previously secret facilities will help us all to acquire the state wisdom which our long-suffering country needs so much.

Union Treaty To Control Nuclear Weapons Sought

LD1709111891 Moscow TASS International Service in Russian 1140 GMT 16 Sep 91

[By "TASS International Observer" Albert Balebanov]

[Excerpts] Moscow, Sep 16 (TASS)-On 17 September, the 46th session of the UN General Assembly will convene in New York. One of the items of business on its agenda concerns the admittance of seven new members—among them Latvia, Lithuania, and Estonia—recommended by the Security Council. [passage omitted]

In the wake of the Baltics, the other USSR republics that have proclaimed their sovereignty are now also preparing their applications to join the international community. This in turn threatens to cast doubt on the future USSR representation at the United Nations. But it would seem that as long as the Union wields authority in foreign policy and defense, including control over nuclear weapons, the USSR's representation is unlikely to change. However, if the Union were to lose control of nuclear weapons—and initial signs of this have already begun to appear, in statements by the leaders of Russia, the Ukraine, and Kazakhstan—then its current status at the UN will inevitably be altered. Such a development would be unlikely to meet with applause in the world, or our country either. This, I think, is why we urgently need a new Union treaty that would finally dot the i's regarding the powers of the new Union of Sovereign States.

Centralized Control of Nuclear Arms Iterated

LD1709231791 Moscow Russian Television Network in Russian 2000 GMT 17 Sep 91

[From the "Vesti" newscast]

[Text] The statement made by President of Kazakhstan Nazarbayev on the necessity of republics exercising control over nuclear arms created quite a stir yesterday. Today, Army General Kobets, Russia's state counsellor for defense issues, calmed the public. He said that everything that Nazarbayev said is in keeping with the provisions of the military and economic agreement between the members of the renewed union; in other words, if a question of using nuclear arms does arise, then the decision concerning this will be adopted jointly by the president of the Union, the Union defense minister, and the leaders of the republics on the territory of which these arms are deployed. God willing, this will never happen.

Paldiski Nuclear Reactors Presence To Be Raised

OW2109194891 Moscow BALTFAX in English 1630 GMT 21 Sep 91

[Transmitted via KYODO]

[Text] Academician Endel Lippmaa, Estonian minister without portfolio, and Juri Liim, a member of the

Estonian parliamentary commission on defense, visited a secret military base in the closed to foreigners town of Paldiski near Tallinn September 19. Mr. Lippmaa told BF [BALTFAX] that 2 moth-balled submarine nuclear reactors are held at the base. However, Mr. Lippmaa said, he has not received information about the reactor's capacity.

According to unofficial sources, the reactors were brought to Paldiski in early 1980 and are kept in a large building. For a long time Paldiski also served as a base for submarines, but military sources say there are already no submarines in Estonia.

Mr. Lippmaa pointed out his intention to raise the question of the Paldiski military base and, in particular, of the nuclear reactors.

Fate of Paldiski Nuclear Reactor Examined

OW2509143791 Moscow BALTFAX in English 1330 GMT 25 Sep 91

[Transmitted via KYODO]

[Text] Juhan Hindov [spelling as received], the Estonian government press secretary, told the newspaper "RAHVA HAAL" that the dismantling of two nuclear submarine reactors kept at a military base in the closed to foreigners town of Paldiski 40 km away from Tallinn will be carried out under the control of the Estonian government.

Estonian Prime Minister Edgar Savisaar has charged Interior Minister Olev Laanjarv [spelling as received] and Transport Minister Tiit Vahi [spelling as received] with controlling the operation. Also, a special commission led by Harry Hein, General Director of the Estonian Rescue Service, has been set up to tackle the problem.

The two nuclear submarine reactors are currently used as training appliances. There is a training center of the Baltic Fleet in Paldiski and for a long time there was a base of submarines.

Paldiski received the status of a closed city in 1962. Military authorities explained such measure with the need to guarantee security of the nuclear installation there.

Mr. Hindov says that the Estonian Premier has received a letter from the Commander-in-Chief of the USSR Navy, Admiral V. Chernavin [spelling as received] notifying about the intention of the military to dismantle the installation. According to the letter, the documents on the dismantling will be prepared by December. However, the Estonian government wants to have it dismantled earlier.

Admiral Chernavin says the installation itself and its dismantling do not pose any threat. At the same time, he demands that Paldiski should remain the closed town

until the installation is dismantled. "Otherwise, unpredictable consequences may occur", he notes.

Commentary Addresses Concerns Over Nuclear Arms

LD1709184791 Moscow Radio Rossii Network
in Russian 1500 GMT 17 Sep 91

[Nikolay Agayants commentary]

[Text] A total of 1,398 land-based intercontinental ballistic missiles, 940 submarine-based missiles, and 162 Soviet heavy bombers are on constant alert duty. A total of 10,271 nuclear warheads continue to be ready to strike at the enemy at any moment. All that needs to be done is to press a switch on the main control panel. Is our top secret system of command codes for the launch of strategic nuclear weapons safe? Here is Radio Rossii commentator Nikolay Agayants to reflect on this topic:

[Begin Agayants recording] The turmoil and confusion of the quite understandable euphoria of the days following the putsch -president free; democracy triumphs- has, whether we like it or not, pushed into the background a vitally important or, as the saying goes nowadays, a momentous problem. Whose finger was on the nuclear button during the coup? World public opinion is alarmed-and clearly for good reason-that for three days a great power was in the hands of adventurists and scoundrels-a state of affairs that could have spelled calamity not just for the country but for the whole world.

Now passions have died down little by little, but the question of Soviet nuclear arsenals in the context of the

collapse of the Union and the appearance of independent states is still extraordinarily acute. Indeed, who today has real power? Where are the nuclear weapons positioned? Where can they be relocated? How can the strictest control over them be ensured in the present conditions of confusion and political instability?

There are many proposals for ways of preserving security in the present complex conditions. They include holding talks on complete renunciation of tactical nuclear weapons; and agreeing that the republics, on becoming independent, should sign a treaty on non-proliferation of nuclear weapons and declare themselves, like the Ukraine, nuclear-free zones. But here, too, there are serious caveats, because the Implementation of such projects would require special juridical legalities, Including reliable guarantees on the part of those who will possess the weapons. It would also require the necessary time and considerable financial expenditure.

The strategic missiles are taken from nuclear-free Ukraine to the territory of Russia-what then? For all her limitless expanses, Russia is then turned inevitably into a powder keg or, In the worst event, which is not yet ruled out, Into a nuclear target. Entirely legitimate worries arise concerning the continuing confusion over the terms transfer of command, dual command, and so on, which do nothing to clarify the question of how the control of nuclear weapons will ever be implemented on that same Russian territory. To put it briefly, unfortunately, it is a formula with many unknowns. Perhaps French President Mitterrand is right to propose that a meeting of the four powers in possession of nuclear weapons In Europe be held as soon as possible. [end recording]

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